

# American Aviation

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*The Independent Voice of American Aeronautics*

NOVEMBER 1, 1946

## TECHNOLOGY DEPT.

### The Friendly S.P.

THE BOYS WHO write the advertising for the Southern Pacific—the friendly Southern Pacific as they always say—had a pretty amusing text under the title “A Short Course in Railroadng—for Airline Executives.”

But the second ad in the series, “Are Railroads Necessary?” is a killer-diller. Among other things it proves that the railroadish advertising people haven’t been reading the newspapers during the past three or four years. The friendly S. P. needs a Short Course in Air Transportation.

*Fortnightly Review*

As to the leading question, we will submit without argument that the railroads are quite necessary to our national economy. No one in air transportation believes we could either do without railroads or that the airplane could replace railroads in anything like present circumstances. There is no debate on this score.

Of course in some areas of the world which don’t have railroads the airplane is performing magnificently in hauling passengers and cargo, and we presume that if people in some isolated parts of the globe who have never had the privilege of seeing a railroad train are conducting their commerce entirely by airplane the railroad boys will forgive them for not knowing any better.

It isn’t the general thesis of whether railroads are necessary that strikes our attention, for the airplane isn’t going to push the railroad train out of existence, but it’s the bald assumption that the airplane can’t carry heavy cargo that is so amazing.

For example the S. P. ad says: “We’d like to see an airplane tote a trainload of oranges from Los Angeles to Chicago, or 5,000 tons of pig iron from Provo, Utah, to Pittsburg, California—or 2,500 tons of newsprint from British Columbia to San Francisco.”

Now really, pals of the friendly Southern Pacific, just what makes you think that these are such difficult and impossible tasks?

Let’s just use the Boeing Stratofreighter as an example and let’s carry that newsprint from Vancouver to San Francisco and perform a miracle unknown to railroads by carrying the oranges for good measure.

It may seem odd to the rail boys that a handful of airplanes equal a 60-car freight train, but perhaps they forget that a little item like 776,532 tons of cargo were carried in small planes over the “Hump” between India and China during the war over terrain that couldn’t

(Turn to page 6)



### Returns to Mid-Continent

Thomas Fortune Ryan has been elected chairman of the board of Mid-Continent Airlines, marking his return to active participation in the company. Ryan resigned his airline position early in the war to serve under Gen. MacArthur in the Pacific. He had delayed his return to Mid-Continent, awaiting the outcome of the American Airlines merger proposal.

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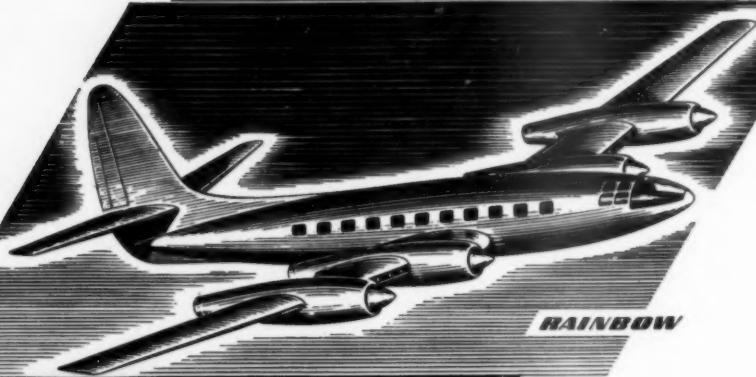
THE NEWS MAGAZINE OF COMMERCIAL AVIATION

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*Characteristic...*



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**RAINBOW**



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Thunderjet . . . Rainbow . . . Seabee . . . each of superb individual qualities . . . yet with that unmistakable rugged family trait of the famous P-47 Thunderbolt, bred into Republic planes since inception. ☞ Into an era of Peace . . . that will brook no further endangering . . . the jet-propelled Republic Thunderjet . . . fastest of all. ☞ Into an era of stratosphere flight . . . inherently Republic . . . the Rainbow . . . a revolutionary transport with cruising speeds of over 400 miles per hour. ☞ Into an era of Independence . . . still inherently Republic . . . the Seabee, all-metal, four-place amphibian, brings adventure that starts from field or stream. It is truly Republic's era . . . a heritage of the finest.

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**NATIONAL AIRCRAFT SHOW  
November 15-24, 1946**

# American Aviation

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The Independent Voice of American Aeronautics

November 1, 1946



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**American Aviation Daily:** The only daily news service for the aviation industry. Published daily except Sundays and holidays since 1939. Dispatched via airmail or surface mail for overnight delivery in the United States. Subscriptions: \$15 one month \$170 one year. Airmail delivery to points outside the United States at additional cost to cover postage. Service Bureau available to all subscribers. CLIFFORD GUEST, Managing Editor.

**International Aviation:** A weekly newsletter of aviation trends and news in foreign countries. Published on Friday of each week and dispatched via first-class surface mail. Editorial representatives in foreign capitals. Subscriptions: \$100 one year (\$2 issues). Airmail delivery available at additional cost to cover postage. Service Bureau available to all subscribers. FRANK M. HOLZ, Managing Editor.

**American Aviation Directory:** Published twice a year, Spring and Fall. Complete reference data on administrative and operating personnel of airlines, aircraft and engine manufacturers, accessory and equipment manufacturers, organizations, schools, U. S. and foreign aviation groups and departments, etc. Completely cross-indexed by companies, activities, products and individuals. Single copy \$5.00. Spring-Summer 1946 issue now available. DAVID SHAW, Managing Editor.

**American Aviation Traffic Guide:** Monthly publication of air line schedules, rates and regulations for passenger and cargo transportation by commercial air transport. Supplements furnished subscribers covering changes occurring between issues. Subscriptions: U. S. and Latin America \$7.50 one year (12 issues and supplements); Canada \$8.00. All other countries \$9.00. Published and revised from editorial offices at 139 North Clark Street, Chicago 2, Illinois. (Telephone: State 2154). H. D. WHITNEY, Managing Editor.

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LOCK HAVEN, PENNA., U.S.A.  
In Canada: Cub Aircraft Ltd., Hamilton

# Editorial

(Continued from Page 1)

be conquered by the railroad without a fantastic expenditure.

Let's start with the *friendly* Southern Pacific. Freight moves in this country at an average speed of about 16 miles per hour and the average turn-around of freight cars, if our information is correct, amounts to about 13 days. So in moving that 2,500 tons of newsprint from Vancouver to San Francisco we estimate that a 60-car train would be needed and between five and seven days for the trip.

Now let's take the Boeing, which has a volume twice that of the average boxcar. It will carry 21 tons payload but we'll make it 20 tons even just for the sake of figuring. At 20 tons to the plane-load, this means 125 plane-loads, or trips, for the 2,500 ton haul. It's only about a 3-hour flight from Vancouver to San Francisco in the Boeing, and allowing for 12 hours' utilization per plane per day, we figure that a dozen Stratofreighters could do the job in five days, or nine Stratofreighters in seven days. Compared with a 60-car railroad train and the trackage, maintenance, and crews, we figure nine to twelve airplanes is a pretty modest requirement for comparative purposes.

But remember this: While the railroad train is exclusively devoted to hauling that 2,500 tons of newsprint, the Stratofreighters *could be hauling the equivalent of another train load of oranges on the return haul to Vancouver*. So a mere nine to twelve airfreighters could do *double* the work of that one freight train in the same amount of time.

So much for freight.

The ad goes on to say: "For that matter, it would have to be a pretty good-sized plane to accommodate the 500 passengers just one of our streamlined Daylights carries each day from San Francisco to Los Angeles—for a little over a cent a mile."

Yes sir, the railroad advertising boys are smart. They have us there. A 500-passenger airplane would really be big. No getting around that. And we don't dispute the "little over a cent a mile" fare. Except that the S. P. fare is day coach travel and it is hardly relevant to compare day coach rail fares with luxury airplane travel. Pullman fares and air fares should be used for comparison.

But let's go into this 500-passenger business. It's quite intriguing. It seems that the *friendly* Southern Pacific requires about ten hours to haul those 500 passengers between San Francisco and Los Angeles. And is it so difficult, after all, for the airplane to compete with this?

A 50-passenger Douglas DC-4 makes the same trip in a little less than two hours. It carries only one-tenth the capacity of a train, but it's five times as fast. It can make five trips to the streamliner's one trip, or two and a half round-trips. To match the railroad's 500 passengers in ten hours, all that is needed is four DC-4s, with frequent and convenient departure times, but the amusing part of this is that these four DC-4s can haul 500 passengers *each way* in the same ten hours it takes for the streamliner to make the one-way trip. So we come out with the simple conclusion that four DC-4s perform *twice* the duty of a single 500-passenger streamliner, and as for what a couple of Boeing Stratocruisers

could do on that route we'd have to hire some statisticians to figure it out. It would be an unmerciful comparison.

All that this amounts to is that so relatively few people in the world really understand what has happened in the development of the transport and cargo airplane. Even the scheduled airlines, so devoted to the job of operating have they been, that they have failed to notice the *transportation* possibilities and potential in their own backyard. As for the *friendly* Southern Pacific, let's have some more "short courses." The lessons will be good for both railroads and airlines.

## International Amity

THE REAFFIRMATION by the United States and Great Britain of the fine Bermuda air agreement has cleared the international haze and marks as great a step forward in opening the airways of the world to commercial traffic as did the Bermuda pact itself. Whether Britain did or did not stray from the path on its own initiative in its dealings with other countries is now beside the point, for its complete acceptance of the U. S. plea to extend the Bermuda agreement to other nations is now a matter of record. The U. S., itself, had strayed somewhat from the path. The London conference in September has ironed out the differences.

The U.S.-Brazilian air agreement is another milestone and great credit is due to CAB Chairman James M. Landis for handling the negotiations expertly. This agreement should be a pattern for all of Latin America. Argentina and Mexico, both of whom endeavored to drive difficult bargains, will sooner or later have to follow the Bermuda-type agreement.

## One More Step Ahead

WHEN GAEL SULLIVAN became Second Assistant Postmaster General about a year ago, he set forth a three-point program of getting the mail into the air. As the most energetic and forward-looking Second Assistant the P. O. has ever had, Sullivan has accomplished two of his goals in what amounts to record time as far as government results are concerned. The domestic air mail rate has been lowered to five cents and no longer are Territories and Possessions penalized by a rate differential. And as of November 1 much lower air mail rates to foreign countries went into effect. The third goal—air parcel post—is closer to being reached.

This constant drive toward lowering of air mail rates must not stop. Although admittedly it was too much to accomplish in one step, there is no reason why air mail to foreign countries should take a charge much more than domestic mail. Even the new 15c per half ounce rate to Europe (which contrasts with the 5c per full ounce rate in the U. S.), must be reduced if the world's commerce is to benefit from the speed of the airplane. In the U. S. the goal must be to remove all surcharges for air mail. Let the mail move everywhere by the quickest means of transport. Gael Sullivan has quickened the trend to a great degree.

WAYNE W. PARRISH

# SPEEDBIRD Geography QUIZ

Can you name the countries, dominions, colonies or territories in which the following 96 places are located?



## HOW TO SCORE

80 or better . . .  
You've been cheating, old thing.  
60 to 80 . . .  
Good show, lad!  
45 to 60 . . .  
Better have another go at it, old boy!  
Under 45 . . .  
There's room for improvement, you know.

1. Accra	33. Frankfurt	65. Marseille
2. Addis Ababa	34. Freetown	66. Masira
3. Aden	35. Glasgow	67. Milan
4. Amsterdam	36. Göteborg	68. Montreal
5. Ankara	37. Gwalior	69. Mozambique
6. Asmara	38. Hamburg	70. Nairobi
7. Athens	39. Hamilton	71. Nicosia
8. Auckland	40. Hargeisa	72. Paris
9. Augusta	41. Helsinki	73. Pointe-Noire
10. Baghdad	42. Hong Kong	74. Port Etienne
11. Bahrein	43. Istanbul	75. Port Bell
12. Bangkok	44. Jidda	76. Port Sudan
13. Basra	45. Jerusalem	77. Prague
14. Bathurst	46. Jiwani	78. Rabat
15. Beira	47. Johannesburg	79. Raj Samand
16. Beirut	48. Juba	80. Rangoon
17. Berlin	49. Kamaran Island	81. Riyan
18. Bordeaux	50. Karachi	82. Rome
19. Bowen	51. Khartoum	83. Salala
20. Brussels	52. Kisumu	84. Salisbury
21. Cairo	53. Lagos	85. Shannon
22. Calcutta	54. Laropi	86. Singapore
23. Copenhagen	55. Leopoldville	87. Soerabaja
24. Damascus	56. Libreville	88. Stavanger
25. Dar es Salaam	57. Lindi	89. Stockholm
26. Darwin	58. Lisbon	90. Sydney
27. Deauville	59. London	91. Takoradi
28. Delhi	60. Lourenço Marques	92. Teheran
29. Douala	61. Luxor	93. Tripoli
30. Dubai	62. Madrid	94. Wadi Halfa
31. Durban	63. Malakal	95. Vienna
32. El Adem	64. Malta	96. Zurich

THE NAMES above were not chosen at random or merely to trip you up. All these places, famous or obscure as they may be, figure in world travel and trade. All are linked with New York City by BOAC and such associated airlines as its companion company, BEA (British European Airways). With some 20,000 staff

manning the 70,000 miles of Speedbird Routes "over the Atlantic and across the world", BOAC is well prepared to advise and assist those concerned with travel or shipping to the points listed.

# B·O·A·C

BRITISH OVERSEAS AIRWAYS CORPORATION

## HERE ARE THE ANSWERS



1. Gold Coast Colony 2. Ethiopia 3. Arabia 4. Netherlands 5. Turkey 6. Eritrea 7. Greece 8. New Zealand 9. Sicily 10. Iraq 11. Persian Gulf 12. Siam 13. Iraq 14. Gambia 15. Mozambique 16. Syria 17. Germany 18. France 19. Australia 20. Belgium 21. Egypt 22. India 23. Denmark 24. Syria 25. Tanganyika 26. Australia 27. France 28. India 29. French Cameroons 30. Aden Protectorate 31. Natal 32. Cyrenaica 33. Germany 34. Sierra Leone 35. Scotland 36. Sweden 37. India 38. Germany 39. Bermuda 40. British Somaliland 41. Finland 42. China 43. Turkey 44. Arabia 45. Palestine 46. India 47. Transvaal 48. Anglo-Egyptian Sudan 49. Red Sea 50. India 51. Anglo-Egyptian Sudan 52. Kenya Colony 53. Nigeria 54. Uganda 55. Belgium Congo 56. Gabon 57. Tanganyika 58. Portugal 59. England 60. Mozambique 61. Egypt 62. Spain 63. Anglo-Egyptian Sudan 64. Mediterranean Sea 65. France 66. Arabia 67. Italy 68. Canada 69. East Africa 70. Kenya Colony 71. Cyprus 72. France 73. French Equatorial Africa 74. French West Africa 75. Uganda 76. Anglo-Egyptian Sudan 77. Czechoslovakia 78. Morocco 79. India 80. Burma 81. Arabia 82. Italy 83. Arabia 84. Southern Rhodesia 85. Eire 86. Straits Settlements 87. Netherlands East Indies 88. Norway 89. Sweden 90. Australia 91. Gold Coast Colony 92. Iran 93. Tripolitania 94. Anglo-Egyptian Sudan 95. Austria 96. Switzerland



## Wings of Yesterday

### 25 Years Ago

The Peking-Tsinan aerial service was opened (Nov. 1, 1921).

Charles "Casey" Jones, in a Curtiss "Oriole", C-6 motor, won the American Legion Junior Derby at Kansas City, Missouri, flying 87½ miles in 53 min., 53 sec. (Nov. 1, 1921).

The American Legion at the National Convention in Kansas City, Mo., adopted a resolution urging Congress to create a Bureau of Civil Aviation in the Department of Commerce. (Nov. 2, 1921).

Lloyd Bertaud won the American Legion Senior Derby at Kansas City, Mo., flying 140 miles in 60 min., 15 sec. He flew a Balilla Ansaldo plane equipped with a C-12 motor. (Nov. 2, 1921).

The International Aero Congress was held at Omaha, Nebraska. (Nov. 3, 1921).

Bert Acosta, in a Curtiss-Navy Racer with a C-12 motor, won the Pulitzer Trophy Race at Omaha, Nebraska. He flew 153.59 miles, 14 turns, in 52 min., 9 sec. His average speed was 176.7 m.p.h. This was the world's record for a closed course. (Nov. 3, 1921).

### 15 Years Ago

Pan American Airways extended air mail service from Santos, Brazil to Buenos Aires, Argentina. (Nov. 2, 1931).

U. S. S. "Akron" carried 207 persons on ten-hour flight—the largest number of individuals ever carried in a single craft by air. (Nov. 3, 1931).

## Letters

### Airline Labor Policy

To the Editor:

As an employee of one of the major airlines, I'd like to comment briefly upon the unenlightened labor policy of our air carriers. As everyone knows, the labor turnover, particularly in reservations departments, is a formidable problem. I believe the following causes largely responsible for such turnover:

1) the pay is extremely low, considering the fact that there is no extra compensation for shift hours or for working irregular intervals such as eight days in a row without a day off.

2) the lack of morale caused by the failure of management to let the employee know what promotion will be in store for him—providing he is capable of course—and the failure to let him know what progress he is making or even if the company is interested in his welfare or progress at all.

3) the habit of offering new applicants better jobs with the company who have had no previous airline experience nor any extra qualification for such a job having the advantages of no shift hours and a normal weekend off—something every employee covets.

4) making the transfer from one department of the company to another very difficult so that there is no encouragement to stay or even to try and advance. In many cases we took

jobs in the reservation department, setting our sights on a higher goal only to find that it is impossible to transfer from the reservation department where the least desirable jobs are.

5) the lack of pension plans and decent working conditions, and the insistence upon running the airline based upon the Army system of chain of command, involving the resultant red tape and lack of efficiency.

There are numerous other reasons for the great number of employee resignations. However, the labor policy of the airlines needs drastic overhauling as soon as possible. There is no single group of employees who are as disgusted, discouraged, bitter, and suffering from lack of faith in a group of employers as are the airline employees today.

(NAME WITHHELD BY REQUEST).

## Books

**HUMAN FACTORS IN AIR TRANSPORT DESIGN.** By Ross A. McFarland of the Graduate School of Business Administration, Harvard University. 670 pp. \$6.00. McGraw-Hill Book Co., New York.

It seems odd that a book like this should come along after some of our air transport companies have passed their twentieth birthdays, and yet fill a very definite need. This does not mean that transport aircraft designers and operators have neglected entirely the considerations of crew and passengers, but that the problems of the mechanism itself have been sufficiently great to hold the human factors in the background. This is mentioned by Dr. Edward P. Warner in his foreword to the book. "The importance of the human factors," Warner says, "has never really escaped the attention of aircraft designers, but their evaluation and the solution of the problems that they present have never had the benefit of organized attack on any such scale as has been applied to the improvement of the aerodynamic qualities of the airplane, its structure, or its power plant."

It might appear from the title that passenger accommodations, noise and vibration, and other more obvious sources of physical discomfort, comprise the backbone of the book. Such subjects are treated thoroughly, but not to the exclusion of a great many other less apparent human factors important to both crew and passengers.

Thoroughness is a primary characteristic of the book. For example, in the chapter on cockpit and control cabin, windshields are given 27 pages and 18 separate illustrations, charts or tables; in another chapter, 50 pages are devoted to the subject of carbon monoxide; in the chapter on passenger accommodations, a total of 20 pages is given to a study of transoceanic flight emergencies and the equipment necessary for successful ditching and survival.

A group of experts might hold a round-table discussion of this book and find little in it that is new or revolutionary. It would need to be a large and expert group, however, and no individual in it could have in his head or in his files all the information which Dr. McFarland has brought together. For the expert and for the person only indirectly concerned with the problems it treats, this is a valuable work.

**AIRCRAFT WOODWORK.** By Col. R. H. Drake. 197 pp. \$3.50. The MacMillan Company, New York.

A new volume in Drake's Aircraft Mechanic Series, this book contains instruction and information necessary to fulfill the woodwork requirements for an aircraft mechanic license. Types of woods and their application to various aircraft parts, glues and finishes used in different aircraft woodwork projects, and tools and machines and how to use them, are the basic subjects of the book. As a good technical book should, it will serve not only as a text for students but as an on-the-job reference book.

## Obituary

### H. Ainsley Highman

H. Ainsley Highman, 60, executive assistant to W. A. Patterson, president of United Air Lines, since 1940, died at his home in Holliston, Mass., on October 9. A native of Bristol, England, Mr. Highman had been in the transportation business since his early twenties. As general manager of the French Lines from 1930 to 1939, at which time he joined United, Mr. Highman was awarded the Chevalier de Merit Maritime by the French Government for his efforts in developing French shipping.

**STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933**

OF AMERICAN AVIATION, published 1st and 15th each month at Washington, D. C., for October 1, 1946.

City of Washington } ss.  
District of Columbia }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared O. Rhodius Elofson, who, having been duly sworn according to law, deposes and says that he is the Vice Pres. Business Admin. of the AMERICAN AVIATION, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

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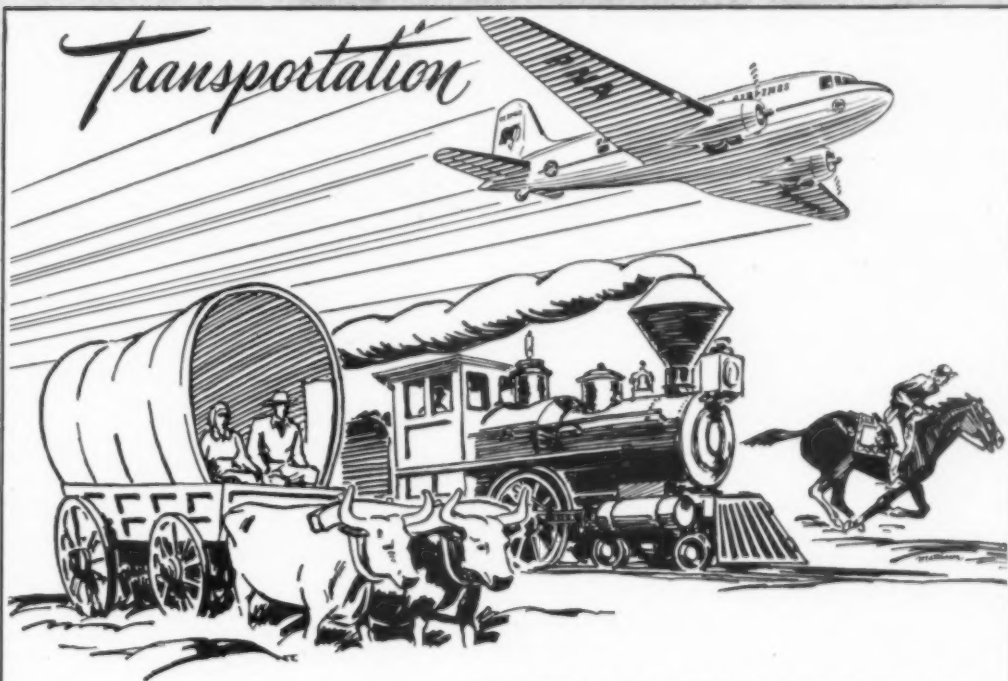
O. RHODIUS ELOFSON.  
(Signature of Business Manager)

Sworn to and subscribed before me this 7th day of October, 1946.

(Seal.) ELEANOR B. SOTHORON.  
(My commission expires July 1, 1949.)



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RESERVATIONS and TICKET OFFICES  
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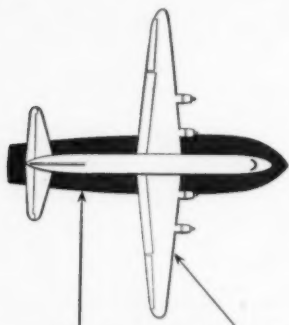
# HANGAR FLYING



## COURSE ONWARD

In October, 1797, the United States Navy proudly launched a graceful, three-masted, 44-gun frigate. In October, 1946, almost a century and a half later, they launched with equal pride a graceful, four-engined airborne transport.

Both ships are called the *Constitution*. The frigate was built in Boston by Joshua Humphreys—the transport in Burbank by Lockheed. Comparison:



	Humphreys'	Lockheed's
Length	175	156
Width	43½ (beam)	189 (wingspan)
Height	230 (approx.)	50
Capacity	400	180
Top speed	12 (knots)	300 (miles)

As did the frigate in her time, the flying *Constitution* marks the beginning of a new chapter in naval achievement. A story in the *Boston Centinel* (October 25, 1797) once again becomes currently valid:

*"The best judges have pronounced the 'Constitution' to be a perfect model of elegance, strength and durability. And every individual employed in her construction appears to pride himself in having assisted at the production of such a chef-d'oeuvre of naval architecture."*

**Look to Lockheed for  
Chefs-d'oeuvre**

© Lockheed Aircraft Corporation, Burbank, Calif.

## Background and Forecasts

(Significant Developments and Forecasts)

**Beech 4-Engine Feederliner Coming:** Beech Aircraft Corp. will have its four-engine feederliner ready to fly early next year. General Manager John P. Gaty firmly expects it to be one of the most formidable contenders in the feeder field. Now that Lockheed has suspended work on its Saturn due to recurring engine troubles, the field will be a little narrower. The Beech plane, known as Model 34, will carry 20 passengers and Gaty claims it will "perform on three engines about as well as most airplanes do with all their engines running." Beech has more than 1,500 orders on hand for its four-place "Bonanza," is rapidly licking production problems, and expects to be turning out 12 a day in the very near future.

**The Air Freight Case:** The pattern which eventually will emerge for the regulation of air freight operations will begin to take some form when the long-delayed Air Freight Case comes up for CAB hearing before examiners at Ft. Worth, Tex., on Nov. 13. CAB has lumped into this one hearing all applications proposing air freight routes throughout the U. S. A week ago there were 30 on the docket. A number of the applicants are surface carriers or their subsidiaries and the case undoubtedly will bring a showdown on the admission of surface carriers into scheduled air operation. Non-scheduled carriers have been carrying far more freight than the scheduled airlines and the time has come for CAB to establish definite policy. The hearing is national in scope and will be held in Ft. Worth because of the hotel situation in Washington. It probably will run at least six weeks.

**Mike Quill and the Airlines:** As pointed out here five months ago, there is growing indication that the labor troubles of the airlines will be multiplied in the future because of the organizing activities which were started last spring by Michael J. Quill, president of the Transport Workers Union and long a stormy labor figure identified by the Dies Committee with Communist organizations. Quill has been notably successful in raids against the United Auto Workers and in recent elections won representation rights for the maintenance and stores employees of Pan American and American Overseas. His control over airline ground crews gives him his greatest strength. Quill's union is now distributing thousands of application cards and glowing accounts of TWU's 'victories' to office and technical employees at the Airlines Terminal in New York City. Said the *New York Journal-American* in a recent report: "Despite this 'self-organization,' it is known that the TWU has a number of paid organizers working on a major campaign to control the nation's airways."

**Shortage of Engine Parts:** In an effort to alleviate a critical shortage of spare engine parts, Wright Aeronautical Corp. is furnishing airline purchasing agents with a monthly list of all items on their critical shortage records. Wright has agreed to procure surplus, for resale, in an attempt to solve current needs. Airlines expect to cooperate by listing with Wright information on surplus spare parts which can be made available to other airlines.

**American Tackles Service Sore Spots:** Criticism of the airlines continues to be something of a national pastime, at least for magazine editors, as exemplified in Wesley Price's caustic *Saturday Evening Post* (Oct. 19) article entitled "Why Airline Passengers Get Mad." The airlines, their problems heightened by increases in personnel and size of stations, are beginning to make strides in overcoming these growing pains. For instance, American is determined to restore passenger service "to pre-war levels of excellence" and for the rest of this year will conduct a special campaign among its employees, spearheaded by Vice Presidents Larry Fritz and Richard Deichler of the Operations and Sales Departments. Meetings of personnel with sales and operations managers in every AA city will be held. Problems selected for special study and emphasis are: (1) Flight information and passenger service during irregular operations. (2) Information to passengers and the public at ticket counters, on the telephone, at the ramp and in flight. (3) Oversales. (4) Baggage mishandling damage. (5) Processing of mail forms.

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**Red Tape Eased in Europe:** Slowly but hopefully there are signs that the tangle of red tape which harasses international travelers can be largely eliminated. Great Britain and France have agreed to abolish visas for travel between the two countries, whether by sea or air. It is understood that the British Government has also approached Belgium and the Netherlands for a similar arrangement. In the U. S., Attorney General Tom Clark reveals that Canadian citizens may now enter the U. S. for visits up to six months without passports or visas. Perhaps eventually time saved by air travel will not be frittered away in unnecessary formalities on the ground. Among international air groups, PICAQ and IATA are taking a commendable leading role in trying to eliminate travel red tape.

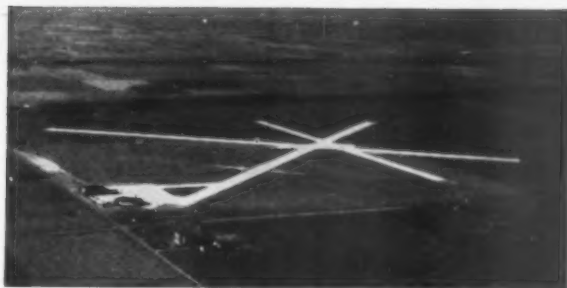
**Rainbow Round-the-Word:** Republic Aviation Corp. hopes to fly the Rainbow around the world to establish a record—expected time is 46 hours, with stops in Paris, Karachi, Tokyo and Alaska. The attempt may be made next summer.

**Sweden's Airliner:** The 28-passenger SAAB-90 Scandia, new Swedish transport powered with Pratt & Whitney R-2000 engines, will not be ready for delivery until 1948. Next year will be spent testing the prototype and tooling up for production. Price of the Scandia: \$200,000. SAAB hopes to drive a wedge in the DC-3 market in Europe, Africa and Asia. However, 1948 deliveries are too late to capture the market.

**British Exports Sales Technique:** The periodical news letter of the Society of British Aircraft Constructors frankly discusses the technique of the British export sales program: "The recent aircraft display organized by S.B.A.C., at which several hundred overseas aviation experts were present, was not a solitary effort on behalf of Great Britain's export trade. It was part of a well organized campaign which has been in progress for nearly two years to put British aircraft on the airlines of the world. "This campaign, centralized through the S.B.A.C. Export Section, is a splendid example of British enterprise. 'Trade Ambassadors,' representing the British aircraft industry have gone out to Latin America, the Middle East and India. They have told the story of British aeroplanes. Following this, commercial aircraft, as they have been produced, have been flown out to let the potential buyers see them fly—a much more practical and attractive method than even the most elaborate brochure."

**Rainbow's Nose Design:** Credit for thinking up the novel nose design of the Republic Rainbow goes to Karl Larsson, chief engineer of ABA Swedish Air Lines. It's a double nose—when in flight the nose is fully covered and sleek, but when the pilot needs better visibility, the upper portion of the nose slips down and reveals a second windshield.

**Something New in Route Requests:** Air carriers traditionally have figured out the routes they would like to have and then have asked CAB to grant them. Cities which stood to benefit from such routes customarily have intervened to support the applications. The Minneapolis-St. Paul Metropolitan Airports Commission proposes to reverse this procedure. It intends to ask CAB to establish the air routes which the Twin Cities need to give them proper and adequate air connections with other cities where they have a substantial community of interest. With some \$20,000 in its treasury, the Twin Cities MAC is getting ready to hire a well-known consulting firm to assist it in studies designed to show the air route services it needs, and then to go before CAB and prove convenience and necessity. Robert Aldrich, MAC director, contends that it will then be up to CAB to select the carrier or carriers to provide that service. If consummated, the proposal will mark the first time that a party other than an airline has instituted a proceeding on such a scale before CAB asking for additional air service. There have been some minor requests instituted by cities, but nothing on the ambitious scale projected by the Twin Cities.



Runways in Municipal Airport, Toledo, Ohio, are concrete, of 8-6-8 in. cross section—over 167,000 square yards.

Commercial plane on concrete apron at Municipal Airport, Wichita, Kansas. Concrete runways in background. This airport has over one million square yards of concrete paving.



Concrete apron and architectural concrete administration building at Municipal Airport, Jacksonville, Florida, which has over half million square yards of concrete paving.

## Build Airports with Concrete to Insure Low Annual Cost

For all but the lighter traffic, concrete runways usually cost less to build than any other pavement of equal load-carrying capacity. They provide years of uninterrupted service with little maintenance expense or need for costly rebuilding.

For airport hangars, shops and passenger facilities concrete construction gives you attractive design with low maintenance expense. It minimizes fire hazards.

For paving or buildings, concrete gives low annual cost—the true measure of economy.

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Dept. 11-65, 33 W. Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of concrete ... through scientific research and engineering field work



# lightweight and compact!

The Bendix Radio Type TA-17 Transmitter is now available to manufacturers and operators of feeder line and executive type aircraft.

Built to rigid performance requirements—requirements that have made Bendix Radio the acknowledged leader in equipment and systems design for large air transport services—the TA-17 is a powerful, lightweight, multi-channel high frequency transmitter; making precision radio equipment available to the feeder line and charter operator without a proportionate sacrifice in potential payload. Weighing only 35 lbs., complete with shockmount and built-in power supply, the TA-17 Transmitter delivers a full 50 watts output on four crystal-controlled channels at any frequency between 2850 kc. and 12,500 kc.

It utilizes standard single ATR/JAN-C172 case, chassis and shockmount design. All antenna tuning adjustments are accessible from the front panel, greatly simplifying the antenna tuning problem. A cover plate protects the tuning controls in normal operation.

**BENDIX RADIO DIVISION  
BENDIX AVIATION CORPORATION  
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**BENDIX RADIO**

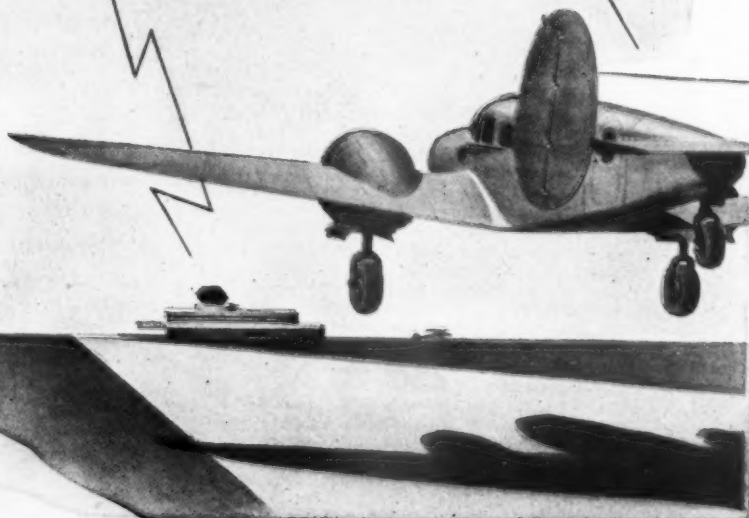
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**For Feeder Line  
and Executive Type Aircraft**





## Traffic Control Plan To Cut Stackup Time

CAA Will Put System on Trial Early This Month In Two Critical Areas In Effort To Eliminate Wasted Flights

By LEONARD EISERER

**A** NEW and intricate system of traffic flow control, designed to minimize hazardous and uneconomic stacking of planes near congested landing areas during instrument weather, will be put to trial early this month by the Civil Aeronautics Administration at two of its 25 airway traffic control centers.

The New York and Washington areas, perhaps the most critical traffic spots in the CAA network, have been selected for immediate application of the plan. Instead of allowing planes to enter these control areas in indiscriminate numbers during congested instrument conditions, CAA will regulate the intake to limit stacking as much as possible. While details of the program were still in the formative stage last week, industry-CAA agreement had been reached on the guiding principle—close coordination of flights into an area with forecastable weather conditions at the various destinations.

♦ **The new system**, as outlined by CAA and industry officials, will function generally in this manner: With deterioration of weather at an airport in the control area, the CAA will limit the planes in the stack awaiting letdown to a minimum number required to assure a reasonably steady stream of landings. Planes destined for that airport from within or without the control area will be kept on the ground and dispatched only in time to fly through to destination without wasting undue time in the holding area awaiting its turn to land.

Thus, for example, a New York-bound plane at Chicago and another at Boston will each be given a departure time that will fit it most readily into the New York landing pattern. Speed en route will possibly be regulated to some extent to facilitate the procedure. It will be the CAA controller's responsibility to allot the available air space in bad weather so that all aircraft—scheduled and non-scheduled airline, Army, Navy, and private—will be treated equitably.

If satisfactory results are experienced in the New York and Washington areas, it is planned to extend the traffic flow control system to the other 23 control areas within the United States.

♦ **Immediate advantages** of the method are obvious. There should be a substantial decrease in the number of flight hours wasted by airlines and all other operators when their planes are stacked up during instrument weather. Official CAA figures reveal that stacked airline transports alone spent 1,721 hours in profitless flying during the first six months of this year, more than a third of this time being racked up in the New York and Washington areas. Army, Navy, and miscellaneous civil craft lost

an additional 696 hours during this period, raising the total delay time during instrument weather to 2,417 flight hours.

The serious financial drain of this merry-go-round flying on airline revenues has long tabbed the present stack-up method as a highly uneconomic solution of traffic congestion.

That at least one of the major airlines is considering a system wide attack on this problem was revealed last month by W. A. Patterson, president of United Air Lines. Stating that travel schedules this winter would be the "poorest in years," Patterson disclosed United's intention to cancel flights 200 miles ahead of any planes going to airfields where there are more than 10 planes stacked for landing. He explained that United would delay flights to prevent overcrowding at the destination points.

♦ **Other than the financial benefits**, the new traffic flow system in cutting the stock-up time should contribute materially toward easing pilot nerves and avoiding ruffled passenger dispositions. For if some delay is necessary, there would be few who would prefer to spend the time in the air than on the ground.

An inherent handicap of the system lies in the vagaries of the weather. Successful operation of the method depends

in great extent upon accurate analysis of weather conditions and prediction of shifting ceilings and visibility. The New York controller may schedule arrivals into that area in anticipation of continued poor weather conditions. With an unexpected turn for the better, stacked-up planes may be landed faster than originally planned, leaving the controller with more available space than planes. But only actual experience with the method can determine the significance of this potential defect.

A more serious limitation of traffic flow control is that it is not expected to speed up appreciably the landing procedure under instrument weather conditions. In itself, it will do little to decrease the average landing interval at La Guardia Field which in thick weather has been running about seven minutes. Unless letdown and landing improvements are effected in the present approach system at LaGuardia the number of instrument landings per hour will still hardly exceed nine planes.

♦ **More positive action** toward alleviating traffic congestion over airports lies in the instrument landing systems being installed at numerous spots throughout the country. CAA officials have indicated that its instrument landing system (ILS) is scheduled for installation at 79 airports by the year-end, and at 112 points by next June 30. As of mid-October ILS equipment was reported ready for operation in 21 cities: Amarillo, Brownsville, Cleveland, Dayton, Grand Junction, Colo., Kansas City, Mo., Los Angeles, New York, Oakland, St. Louis, Wichita, Atlanta, Chicago, Dallas, Denver, Indianapolis, Las Vegas, Louisville, New Orleans, Omaha, and Washington, D. C.

For many months the airlines have been busily equipping their aircraft with suitable receiving instruments to utilize these new landing facilities and have been stepping up pilot training in ILS use. However, special procedures required for use of ILS have not yet been approved by the CAA's air carrier division, and whether the airlines will be able to rely on the system as a primary landing aid this winter remains to be seen.

As part of the search for better all-weather landing aids, CAA early next year will begin experimental operation of GCA (ground control approach) radar units at LaGuardia Field, Washington, and Chicago airports. Present schedule is for the unit to be ready at LaGuardia by Jan. 15, at Washington by Feb. 1, and at Chicago by Feb. 15.

♦ **The equipment**, manufactured by Gillfillan Bros., Inc., Los Angeles, is being made available by the Army Air Forces in an effort to determine the applicability of radar to civil aviation. Cost of the equipment, according to AAF, is more than \$500,000, consisting of three mobile GCA units valued at \$130,000 each and three remote control units for



**Promoted**—Hugh W. Coburn has been elected vice president-traffic and advertising of Mid-Continent Airlines. He formerly was general traffic manager of Mid-Continent. A veteran in airline traffic circles, Coburn formerly served with Western Air Express, Hanford Airlines and U. S. Airlines.

tower installation at \$40,000 each.

Installation expenses will be absorbed by the Air Transport Association, working in conjunction with the CAA. The CAA will operate and maintain the equipment. The new apparatus requires only six men to operate for each 24-hour period, compared with 18 needed with equipment previously used by the AAF in military operations.

The single-operator GCA sets in the beginning will be used principally for monitoring purposes, as auxiliary aids to the controller in bringing planes in for safe landings through low visibility. The radar will enable the tower controllers to "see" all aircraft and obstructions under 4,000 feet within a 30-mile radius. ♦ Since no special equipment is required in the aircraft, other than regular two-day radio, the GCA units will be useful in directing small personal planes, as well as airline and military craft.

## Five 'Non-Scheduled' Airlines Are Told to 'Show-Cause' by CAB

Five "non-scheduled" airlines were pulled up short by the Civil Aeronautics Board last fortnight. The Board virtually accused them outright of violating the law by operating as scheduled common carriers without certificates. All five were ordered to appear at hearings to show why CAB should not prohibit them from flying as scheduled common carriers.

The five lines affected by the Board's orders are: American Air Export and Import Company (AAXICO), Army Hangar No. 1, 36th Street Airport, Miami, Fla.; Caribe Airways, Inc., No. 1 Fernandos Campos, San Juan, P. R.; Texas Air Lines, Inc., P. O. Box 1308, Houston 1, Texas; Trans-Caribbean Air Cargo Lines, 36 West 44th Street, New York; and Trans-Luxury Airlines, Inc., Hotel Lincoln, New York.

♦ All the companies except Texas Air Lines, the Board said, appear to be "engaged in the scheduled carriage by aircraft of persons and property as a common carrier for compensation or hire" in interstate or foreign commerce. Texas Air Lines, although its routes are confined to the state of Texas, was apparently hauling passengers and cargo moving in interstate or foreign commerce.

It is regarded as especially significant that the CAB has undertaken to test the legality of Texas Air Lines' operation over wholly intrastate routes. This case will mark the second time in CAB history that a carrier claiming to be intrastate has come under investigation. In the previous instance, Canadian Colonial Airways began an intrastate service between New York and Niagara Falls. CAB took the case to court to secure an injunction forbidding the operation. Canadian Colonial then abandoned the route and the court case was closed.

Significantly, the Board pointed out that none of the five lines had an air carrier operating certificate issued by the Civil Aeronautics Administration or a certificate of convenience and necessity issued by CAB. To operate scheduled common carrier service without both certificates violates Civil Aeronautics Act.

The five proceedings were assigned docket numbers and are to be set down for a formal hearing.

## Patterson Forecast of Increased Rates Finds Other Airlines Differ

W. A. Patterson, president of United Air Lines, made an inspection tour of United's system last week, wound up in Portland, Ore., with a prediction that airline passengers soon could expect an increase in fares and probably would get poorer service.

The response from three competitor airline chief executives was prompt and vociferous.

Said C. R. Smith, chairman of the board of American Airlines: "Airline costs are directly affected by rising costs and in that respect they do not differ from other industries. I know of no one capable of predicting when costs will stabilize. For that reason, it would be folly to predict, without reservation, that there will be no future increases in fares. I am convinced, however, that it is not yet apparent that we must now seek higher fares."

♦ Said Jack Frye, president of TWA: "We do not agree with Mr. Patterson's gloomy forecast for the future . . . during this transitional period, we believe that a reduction to normal passenger loads will enable to provide better service to our customers . . . TWA's forecasts indicate that its operations in 1947 should be well in the black based on present costs and rates."

Said E. V. Rickenbacker, president of Eastern Air Lines: "We ordered new equipment, put into operation new schedules and speeded up flights over our entire system for one definite reason: to create more space for passengers. That space is now becoming increasingly available. Our expansion program and the increasing availability of seats has long been planned. It does not mean that we will be losing money next year."

♦ Patterson's forecasts were based on a belief that the air travel peak is beginning to subside. "Our load factor was off 4% in the past three weeks," he said. Transients have either spent their money or are settling down." He also said that wages were up 40%, making it impossible to break even on a pre-war 65% load factor. Now it takes an 80% factor.

On the subject of costs, Smith replied that a considerable item in this category comes from the expense of operating ground facilities. "In many cases such facilities are needlessly duplicated by the individual operator and considerable economy can come from more sensible utilization of joint facilities . . . The principle can and will be adopted by the air carriers and operating costs will be substantially reduced."

♦ "These potential economies must be linked with the production and sales of air transportation in quantity and you do not achieve quantity production and sales by increasing the price of the article to be sold," Smith concluded.

On the question of service, Frye pointed out that "we have long realized that our service has suffered from postwar readjustment problems, but through that realization we have sought consistent improvements in our service. We do not intend to stop. TWA will be providing better passenger service, better accommodations, faster schedules and greater safety and dependability to the air traveler next month, next year and the years after."

## Aviation Calendar

Nov. 1—CAA hearing on reimbursement for damages to public airports by Federal agencies, Washington.

Nov. 7-8—SAE National Fuel & Lubricants Meeting, Mayo Hotel, Tulsa, Oklahoma.

Nov. 15-24—National Aircraft Show, sponsored by Aircraft Industries Association, Cleveland.

Nov. 19—PICAO Communications Division resumes, Montreal.

Nov. 20-22—National Aviation Trades Association annual convention, Cleveland.

Dec. 2—Aeronautical Show Council meeting, Washington, D. C.

Dec. 2-4—SAE National Air Transport Engineering Meeting, Edgewater Beach Hotel, Chicago.

Dec. 3—Air Transport Association Board of Directors meeting, Washington, D. C.

Dec. 4-5—Air Transport Association annual membership meeting, Washington, D. C.

Dec. 10—IATA North Atlantic Traffic Conference, New York.

Dec. 12-15—Second Annual International Aviation Celebration, El Paso, Tex., auspices Chamber of Commerce.

Dec. 16-18—Aviation Distributors and Manufacturers Ass'n fourth annual meeting, Edgewater Beach Hotel, Chicago.

Dec. 17—Anniversary dinner, Washington, D. C., Aero Club, Statler Hotel.

Dec. 17—Tenth Wright Brothers lecture, auspices IAS, U. S. Chamber of Commerce Auditorium, Washington, D. C., 3:30 p.m.

Jan. 10-12, 1947—15th Annual All-American Air Maneuvers, Miami.

Jan. 6-16, 1947—Aviation of Tomorrow Exhibit, Miami.

Jan. 27-30, 1947—Fifteenth annual meeting, IAS, New York.

Feb. 1-28, 1947—Inter-American light-plane cavalcade, Brownsville, Panama.

April, 1947—National Aircraft Show, Los Angeles.

## President Renames Young To Civil Aeronautics Board

President Truman on Oct. 24 announced the reappointment of Clarence M. Young as a member of the CAB. Young's term expires Dec. 31. Although a Board member's normal term, as provided by statute is six years, it remains to be seen whether Young has committed himself for that length of time. He has been reported disturbed at the approach taken by some of his colleagues to air transportation problems and this fact has aroused some doubt as to whether he will stay with the Board for the full term.

# Government Seizure Looms As Pilot Strike Paralyzes TWA

## Air Coordinating Committee May Take Action in Tie-up

GOVERNMENT seizure of Transcontinental & Western Air's operations as a result of the strike of TWA's 1400 pilots and copilots and the grounding of its planes in domestic and international service loomed as a distinct possibility as this issue went to press.

While TWA President Jack Frye and David L. Behncke, president of the Air Line Pilots Association, had been brought together Oct. 25-45 by Judge Frank P. Douglass, chairman of the National Mediation Board, close observers said that there was little to indicate that the conference would lead to a settlement of the strike.

The Air Coordinating Committee, top policy advisor to President Truman on civil aviation matters, had met earlier to consider the implications of the TWA strike, but took no action. It was assumed that if attempts to bring the parties together for new negotiations failed, the committee would give the question its serious consideration and advise the President of its recommendations.

The strike, generally regarded as the first in airline history, was called Oct. 21 after TWA rejected demands of David L. Behncke, president of ALPA, contained in a 30 hour ultimatum issued Oct. 19— a Saturday when the offices of TWA are normally closed.

♦ TWA's 1400 pilots went out early in the morning of Oct. 21 except in cases where it was necessary to bring flights to the next nearest destination. Before the day was over, all but one of TWA's 103 planes were grounded in the United States and in many foreign countries. Travelers, TWA pilots and employees were stranded all over the world. One flight, bearing United Nation delegates, was operated between Paris and La Guardia by pilot-executive personnel of the company. The union immediately hinted at disciplinary action against these pilots because it was said the men were "essentially members of ALPA on inactive status."

Behncke said the strike was called when all steps provided under the Railway Labor act for settlement of management-employee disputes had been taken and failed. The last of these were lengthy hearings held by a President's Emergency Board which made its recommendations as to pay rates and working conditions on July 8. The strike vote had been taken last March after which the Emergency Board was appointed to negotiate a settlement.

Action on the strike vote was precipitated, an ALPA spokesman said, when flyers of four-engine planes in international operations received their first pay checks under the Emergency Board recommendations which TWA put in effect Aug. 8. It was claimed that the actual pay was lower than the compensation received under interim pay which the pilots received while the negotiations were in progress.

♦ Frye said that after considering the ultimatum, he had asked Behncke to set

a time and a place to confer with management representatives.

"I am just as anxious as you are to see this matter cleared up," Frye said in a written communication to Behncke. "I am puzzled why the Association waited more than two months since the company's invitation to meet on these problems, and has now suddenly submitted a demand for revisions at 10 o'clock on a Saturday morning, which is so urgent that it has to be accepted or rejected in 30 hours."

At a press conference later, Frye said TWA had wired and written Behncke twice during the 30 day "status quo" period to set the time and place for a meeting to consider any differences over the recommendations of the President's Emergency Board. When Behncke failed to respond to these invitations, TWA placed the pay schedules recommended by the President's Board into effect at the expiration of the period.

♦ During the 30-day period, Behncke asked the Emergency Board for an interpretation of some of its recommendations. Neither the President or the National Mediation Board saw fit to call the Emergency Board together again and shortly after the middle of September, Behncke sent the President a letter stating that the TWA pilots had rejected the findings of the Emergency Board. It was disclosed later that the National Mediation Board sometime after Behncke had notified the President of the rejection of the recommendations had decided to reconvene the Emergency Board in November.

In the welter of conflicting statements over pilot pay relating to wages before, during and after the year of negotiations, Frye told the press that Behncke's statement to the President that the Presidential Board rates were as much as 24.7% less than some pilots were receiving, was not accurate. Frye said Behncke's statement could apply only to pilots who were flying TWA aircraft under military contract operations during the war, into war zones under far from normal conditions. Because of extra hazards, longer flight hours, heavier loads, TWA had paid these pilots from \$1,000 to \$1,100 extra per month. Frye made it plain this should not be construed as peacetime pay.

♦ Frye furnished the press conference with information on pay differentials involved in the dispute.

An eight-year captain, flying 77 hours monthly, half day and half night, received, before the Presidential Board's recommendations, \$9,745.20 for flying a DC-4 domestically, and \$10,114.80 on a Constellation. Under the board's figures, he receives \$10,230.36 on a DC-4 and \$11,015.76 on a Constellation, plus \$750 in both cases if flying is international. Under ALPA final proposals, he would receive \$13,163.76 on a DC-4 and \$14,249.16 on a Constellation, plus an unnamed additional amount for international operations, Frye stated.

As this issue went to press, TWA was preparing to furlough 15,000 employees, without pay. Pilot picket lines had been

discontinued and maintenance employees who had refused to go through the picket lines had gone back to work.

## Air Cargo Receives Airline Owners Aid In Ground Organization

In a move toward improving ground handling of air freight by scheduled carriers, airline stockholders of Air Cargo, Inc., have voted to make \$100,000 available for converting that research group into an active ground service organization. This long awaited action follows recommendation of a special Air Transport Association cargo committee that Air Cargo, Inc., be activated for the provision of ground services and the coordination of the property services of the presently scheduled airlines.

The initial sum of \$100,000 needed for capital, organization, and other requirements will be provided by the airlines in accordance with the pro-rata formula contained in the original Air Cargo, Inc., agreement dated Dec. 21, 1942.

♦ While Emory S. Land, ATA president, indicated his desire to resign as head of the activated cargo organization, his resignation was not immediately accepted by the latter's board of directors. Under present plans, Air Cargo would service the individual airlines, to some extent using facilities of the Railway Express Agency. Although cancellation of existing REA contracts has been considered, such action is not expected immediately.

To speed solution of complicated air freight problems that must be solved before the airlines can handle cargo on a volume basis, ATA President Land has appointed a quartet of special committees to point the way.

♦ These committees and their special assignments are:

1. Interline and/or Interchange Procedures and Agreements Committee. Purpose is to develop immediately uniform plans and procedures for the interchange of air cargo between all air carriers.

2. Interchange with Surface Carriers Committee. Purpose is to develop uniform agreements for execution between air carriers and all connecting surface carriers to permit ready interchange of traffic from and to points other than those served by air carriers.

3. Uniform Pick-Up and Delivery Agreement and REA Contract Committee. Two-fold aim to develop (a) a suggested uniform contract to be executed with all cartage operators, and (b) a suggested revision of the present REA agreement.

4. Equipment Interchange Committee. Assigned objective is to develop procedures and agreements which will permit point-to-point transportation of plane-load lots.

## Iceland Ratifies American Application To Use Keflavik

The Parliament of Iceland, by a vote of 32 to 19, has ratified an agreement with the U. S. permitting American use of Keflavik Airport, but requiring the withdrawal of U. S. military personnel. The approval includes, however, insistence on four amendments drawn up by the Parliament's Foreign Affairs Committee which are designed to safeguard Iceland's sovereignty. Iceland will acquire full title to Keflavik and Patterson Airports.



# 1000 At Aviation Clinic Hear Industry, CAB, Counsel Leaders

## Lack of Adequate Discussion On Commentary Seen As Failure

By ERIC BRAMLEY

OVER 1,000 persons from all segments of the aviation industry spent four days at the National Aviation Clinic in Oklahoma City, Oct. 14-17, and while it is doubtful whether they received the solutions to any of their problems, it was certain they were discussed.

As a matter of fact, one of the big criticisms of this fourth clinic was that the problems were discussed too much by the formal speakers, and that many of the competent industry people there did not have a chance to offer their thoughts in informal discussion for defense.

♦ **Altogether the clinic heard 27 speeches** covering a wide variety of subjects, devoted one afternoon to attending "aviation short courses," and adopted 24 resolutions. Most observers considered this year's sessions worthwhile, although practically everyone had ideas on how the program could be improved.

The first brief flurry of the clinic arose during the session devoted to "surface carriers and air transport." Robert S. Henry, assistant to the president and public relations director of the Association of American Railroads, spoke first, arguing that each individual case of a railroad seeking to enter air transportation should be decided on its merits. The interpretation of the Civil Aeronautics Act, he said, has "pre-judged" the cases of the surface carriers. This situation has "operated to preserve to the present group of companies a virtual monopoly of commercial scheduled air transport," he added.

Robert Ramspeck, executive vice president of the Air Transport Association, answered Henry by stating that the airlines "oppose ownership of differing forms by the same company, but there is no reason why the public should not have—either through voluntary action or by law—coordinated service . . . We have no quarrel with the fixed base operators, the contract carriers or the private operators and flyers. We do feel, however, that any who seek to engage in the business of common carriage in the air should have the same rules under which we operate."

♦ **H. Struve Hensel**, general counsel of the Independent Airfreight Association, asserted that his group wants "the maximum competition practicable, special airfreight certificates, and caution and flexibility." As the industry grows, he said, "regulation will become essential. We must take care at the outset, however, to make sure that regulation is fashioned from knowledge and not sprung full panoplied from some human brains trying in vain to pre-determine the coming world." "If the airlines want to enter the airfreight picture they should do so without any reliance on government subsidy," he added.

Following these three speeches, T. E. Braniff, president of Braniff Airways, asked permission to be heard. He stated that the railroads did not want to enter the airline industry in the early days when it was in a "distressed financial condition," but that now evidently the

airlines have reached the stage where "someone wants to take them over." Railroads emphasize airline subsidies, but don't say much about the large land grants they received in the early days, he said, also accusing the railroads of "trying to poison the minds of people" on the subject of furnishing airports and facilities. The airlines have no quarrel with airfreight lines, Braniff said, but he pointed out that the airlines have been in the cargo business for a long time but did not believe it economic to expand too rapidly.

♦ **The too-short discussion period** did not permit others to speak (and the clinic did not adopt a resolution on rail vs. air) but the airfreight subject came up again when resolutions were presented. A resolution was proposed favoring deferment of non-scheduled lines from CAB economic regulation as now applied to scheduled carriers, pending study and experience. Following a short discussion in which AAL's contract cargo head, James Wooten, announced individual support in opposition to his company's dissent, the resolution passed.

♦ **The clinic heard Florello LaGuardia**, UNRRA director, state that CAB should resurvey the airlines' mail pay to make sure that, with rising costs, it had not been reduced "too much too soon." LaGuardia criticized the airlines for expecting to get "continued subsidies" from municipally-owned airports. He also criticized CAA for proposing, under the National Airport Program, to stand less of the cost of large than of small airports.

Another well-received speech was given by John Victory, executive secretary, National Advisory Committee for Aeronautics, who stated that with introduction of jet engines "we now do not see a limit to the amount of power that can be provided for aircraft propulsion." It appears certain, he added, "that really high-speed flight is going to require extremely thin airfoils, perhaps of such radical form as diamond or 'double-wedge' shapes circular arcs, or other unconventional sections." Airplanes will fly normally "either at speeds below 600 mph or above 800 . . . at least until more scientific data become available that may permit steady flight in the transonic region." He said that "the structure of the high-speed airplane of the future must be enormously stronger, yet lighter and smaller."

♦ **One speech received with disappointment** by most observers was that of Ralph D. Paine, Jr., managing editor of *Fortune*, which recently printed an article, "What's Wrong With the Airlines." Paine said that "American air travel is by all odds the best in the world," and that "there is a lot more right with the airlines now than there was six months ago."

At a session devoted to airports, Joseph McGoldrick, New York attorney, who conducted the airport terminal study for the Air Transport Association, stated that "if the airlines are to undertake to finance and operate the terminal buildings they must give more thought to the functioning and design of such buildings. There is no agreement today as to the layout of terminal buildings as there is with respect to runway specifications . . . It seems to me that prudence dictates that

whatever is done in the next few years be kept extremely simple and flexible."

CAA Administrator T. P. Wright, stating that CAA has now embarked on a "truly national airport program," defended the proposed regulations covering the program by saying that "you will find that they emphasize direct dealing with the federal government at a local level." Arthur Boreman, Iowa publisher, said, however, that he did not believe the program can produce "even 20% of the airports we must have." He said it should be changed to assure an adequate field near every incorporated town in the country—16,000 of them.

♦ **A word of caution** was injected into the private flying picture by W. T. Piper, president of Piper Aircraft Corp., who said that there are now too many companies building personal planes. He predicted that the industry will boil down to a few companies making mass production planes, and a few others producing costly tailor-made jobs. Prices will remain high until mass production is achieved, and 50,000 planes yearly is not mass production, he said.

Jerome Lederer, Aero Insurance Underwriters' chief engineer, told the clinic that the industry must get at the root causes of accidents first by improving the quality of instructors, secondly, by inculcating the proper attitude among the young, and thirdly, by shunning "accident-prone."

J. S. "Doc" Hartranft, Aircraft Owners and Pilots Association general manager, touched off another debate when he spoke on the "bite on the private flyer." Bites, he said, are being taken by greedy airport operators who overcharge for service and repairs; airport managers who charge landing fees; plane, engine and products manufacturers, who should exercise closer supervision over their dealers and distributors; overcharging on labor by repair base operators; CAA, with its \$5 recordation fee and proposal to charge for use of federal airways; states which levy tariffs and sundry fees, and gas taxes, and the practice of some operators in charging transients higher gas rates.

♦ **Both William One, One Aircraft Corp.**, Kansas City, and Wayne Weishaar, Aeronautical Training Society, defended the fixed base operators as ethical businessmen, and asserted that only a few "shade tree operators" warrant a bad name.

Elizabeth Gordon, editor of *House Beautiful*, and Max Karant, editor of *Flying*, had plenty to say about what was wrong with today's personal aircraft. Karant said planes are "not nearly what they should be . . . They are uncomfortable, noisy, harder-to-fly than they should be." He listed tricycle landing gear as an "absolute must." Miss Gordon, who gave one of the best speeches, said that flying must be made easier if women are to fly. She spoke highly of two-controls and tricycle gear. The "most scarifying part of it all is that the things the industry ought to do they won't even admit need doing," she said.

## Briegleb Buys Army Field

Briegleb Aircraft Co., Van Nuys, Calif., has purchased the Victorville Army Air Field, Auxiliary Landing Field No. 3, Mirage, Calif., for \$12,000; \$2,400 cash and balance amortized over a ten-year period. The 640 acre field which contains four runways, three main buildings, one guard house and an operator's building, will be used by Briegleb to expand its soaring school which includes veterans among its students.



## National Aviation Clinic Resolutions

Resolutions passed at the National Aviation Clinic in Oklahoma City last month (1) favored deferment of non-scheduled carriers from CAB economic regulation pending further study and experience, and asked separate category for air freight carriers for both safety and economic regulations; (2) asked CAB to expedite action on the "many hundreds" of applications for extension of air carrier service, and urged larger appropriations to improve quantity and quality of CAB personnel; (3) demanded that War Assets Administration expedite return of leased airports; (4) asked removal of restrictive aviation clauses from life insurance policies; (5) urged continuing study of flying safety; (6) recom-

mended establishment of a secretary of defense with under-secretaries of Army, Navy, and Air Power; (7) asked states and state aviation commissions to help education departments and teachers to keep abreast of aviation developments; (8) condemned individuals who "for their own selfish interests" seek by legal proceedings to obstruct development of airports; (9) asked that private flyers' trans-border flights be made easier; (10) asked federal government to continue control tower operation; (11) asked recognition of glider pilot training under GI bill of rights; (12) urged aviation committees in both houses of congress and in state legislatures; (13) recommended simplification of

immigration, quarantine, customs and clearance laws; (14) asked towns to establish uniform air markets; (15) urged NACA to accelerate research to improve aircraft, giving priority to noise reduction; (16) asked congress for a strong air power program and for aeronautical research funds; (17) recommended that every town and city plan development of at least one landing area regardless of whether federal funds are available; (18) opposed regulation of aviation by any agency involved in regulation of any other form of transport, and (19) asked selective service to defer scientists and aeronautical engineers from draft calls in order that they might promote aviation research.



**Camera View of Aviation Clinic**—Representative of the personalities attending the 4th annual National Aviation Clinic in Oklahoma City, Oct. 14-17, are the participants shown above. (1) Roscoe Turner, colorful president of the National Aviation Trades Association, drives home a point to William B. Stout, pioneer aviation engineer and v. p.-private flying for National Aeronautics Association. (2) M. E. Lukens, assistant to vice president, American Airlines, and James A. Wooten, general manager of American's contract air carrier division. (3) L. Welch Pogue, former CAB chairman and now NAA president, chats with James M. Landis, present CAB chairman, following the latter's address outlining problems facing the air transport industry. (4) William P. McCracken, Jr., general counsel for NAA, who presided at the opening session on air transportation. (5) T. E. Braniff, president of Braniff Airways, speaks extemporaneously on the heated railroad-airline issue. (6) L. L. Schroeder, commissioner, Minnesota Department of Aeronautics, and new president of National Association of State Aviation Officials; William L. Anderson, executive director, Pennsylvania Aeronautic Commission; and Bob Aldrich, head of the Minneapolis-St. Paul Metropolitan Airport Commission. (7) Richard A. Dick, vice president-traffic of Western Air Lines, who presided over private flying discussion. (8) Joseph T. Geuting, manager of the Aircraft Industries Association's Personal Aircraft Council, and John E. P. Morgan, executive director of AIA. (9) Robert Ramspeck, executive vice president of the Air Transport Association, who told the clinic that the airlines favor collaboration

between the various forms of public carriers but oppose ownership of different forms of transportation by the same company. (10) Grove Webster, director, Purdue Aeronautics Corp., Purdue University.

(11) W. T. Piper, president of Piper Aircraft Corp., who discussed personal aircraft production and problems facing the lightplane industry. (12) J. K. Dobbs, president of Dobbs Houses, Inc., restaurant and airline caterers with headquarters in Memphis. (13) Pat Moore, secretary-treasurer, American Association of Airport Executives, presents honorary lifetime memberships in AAAE to George R. Borsari, CAA airport liaison division, and Charles B. Donaldson, CAA assistant administrator for airports, for their contributions to aviation and airports during 1945. (14) Joseph McGoldrick, New York aviation attorney who conducted the terminal corporation study for ATA, presented his views on joint ownership and operation of airport terminal facilities. (15) Wayne M. Weishaar, secretary-treasurer, Aeronautical Training Society.

(16) Robert S. Henry, assistant to president and public relations director, Association of American Railroads, who touched off the controversial railroad-airline session. (17) J. B. Hartnett, Jr., general manager, Aircraft Owners and Pilots Association, who catalogued the variety of "bites" which are being put on private pilots, making personal flying unnecessarily expensive. (18) R. L. Burla, vice president, North American Aviation, and a clinic delegate for aircraft manufacturers. (19) Civil Aeronautics Administrator T. P. Wright, holding a press conference for newsmen, prior to his clinic discussion of standards and regulations of the Federal Airport Act.

# Sorrell Report Speaks Against Steamship Lines Air Charters

**Ship Companies Not Qualified To Compete, Researchist Says**

By GERARD B. DOBBEN

A COMPREHENSIVE and convincing argument against steamship operation of international air transport routes is contained in a new report prepared for the Air Transport Association based on months of study and research by Dr. Lewis C. Sorrell, Department of Transportation, University of Chicago.

In an overall conclusion, the report points out that the United States is entitled to be represented in international air transportation by those best able to develop the business and to meet whatever challenges our foreign competitors will have to offer.

♦ "We have demonstrated that the merchant marine is far from being the best talent available. We urge that the Committee (House Interstate and Foreign Commerce) refuse to recommend any change in the present provisions of the Civil Aeronautics Act limiting the participation of steamship companies in air transportation. If any change is made it should be one which will impose further restrictions rather than one which will give them greater freedom," the report states.

On the general question of fitness and ability of steamship companies to operate air passenger service, the report makes much of the fact that during a 10-year period from 1929 through 1938, U. S. flag ships of the merchant marine obtained only 23% of the estimated total passenger revenues derived from carrying travelers to and from our shores and that foreign steamship lines took 77% of this business.

The report states that the U. S. steamship companies have not developed this business, they have not established any prestige as passenger carriers, nor good will in the passenger market. The figures, the report states, are an indication of the weakness of the merchant marine and they show not prestige but a positive lack of prestige.

♦ Dr. Sorrell asserts that the steamship companies have no substantial overseas traffic organizations. Their traffic organizations, he points out, is primarily one which is available to all comers and does not restrict its efforts to the sale of business for any individual steamship line, railroad, airline, or other form of transportation.

In answer to the argument that economies would result from joining air and surface transport, Dr. Sorrell states this is the first argument of the monopolist.

"If this theoretical saying in overhead is to be given the status of a major objective, why should we have more than one steamship company in the overseas trade? Why should we have more than one power company in the United States? As is perfectly obvious from the anti-trust and other laws on the statute books of the United States, savings in overhead have not been regarded as a prime consideration in business organization, and it would be a sorry day, indeed, when it did

become so," the report declares. It is stated that overhead which might be shareable between steamship and airline operations would probably not exceed 3 or 4 per cent of total operating expenses.

♦ Some of the other broad conclusions reached are: (1) Common ownership of shipping and air transport is not necessary for coordination. (2) Ownership of aircraft by Steamship companies will not provide the Nation with more 'surface vessels. (3) Joint ownership of air transport and steamship service would affect adversely the development of both of them. (4) With few very minor exceptions foreign shipping companies did not own airlines before the War and there is no indication that they will after the war. (5) Foreign ship-air combination is not a competitive threat in any event. (6) Our merchant marine will not be at a disadvantage because of a lack of passenger vessels.

The report states that the development of air transport justifies and requires utilization of the best American talent, that the Merchant Marine, by its history and experience, is not the best media to supply this talent, that American air transport operators, who have produced operations which are far and away the best in the world, are best qualified to represent this country in the field of international air commerce.

♦ One chapter of the report is devoted to interpretation of Section 408 (b) of the Civil Aeronautics Act. The American Export case is reviewed and the conclusion is reached that "while the Civil Aeronautics Act of 1938 restricts the extent to which steamship companies may participate in Air transportation it does not bar them from air transportation."

## Landis Asks Industry For Full Cooperation

In a banquet room in Oklahoma City, CAB Chairman James M. Landis made his first speech on the problems and philosophy of domestic air transport. His National Aviation Clinic address was the first public statement the new Chairman had made on the domestic picture, and he pulled no punches.

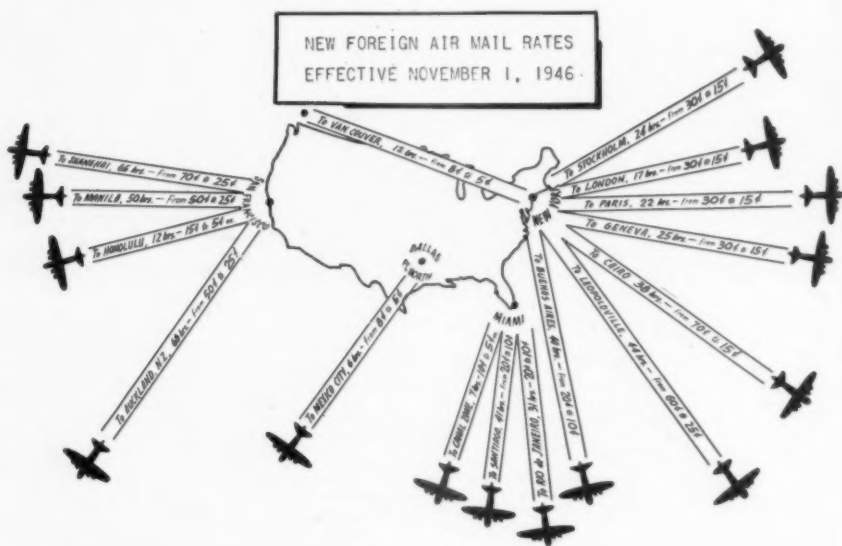
He told the industry that the Board was set up to work for, not against, the airlines and that he expected like cooperation from the companies themselves. But he also warned the airlines that they would have to give fully adequate service on their present routes before asking for new extensions.

Speaking on feederlines, Landis said that it would cost the taxpayers about \$20,000,000 annually to support a nationwide feeder network, but that he thought it was worth it. He also warned that non-scheduled companies could not expect to have all the privileges of scheduled airlines without also shouldering their responsibilities.

The CAB chief hammered repeatedly on the airline safety question, claiming that far too many accidents result from pilot error which may in turn spring from slipshod training and maintenance. Landis said he thought too much emphasis was being put on "more speed, more engine utilization, quicker turn arounds."

## Pryor Gets Medal of Merit

Samuel F. Pryor, Jr., executive Vice President of Pan-American Airways, was recently awarded the Medal of Merit by Secretary of War Patterson. The citation accompanying the medal stated it was for "exceptionally meritorious services" in organizing the Airport Development Program which comprehended the establishment of fifty airfields, seaplane bases and lighter-than-air fields in sixteen countries.



**Foreign Airmail**—Displayed graphically above are the new overseas airmail rates which become effective November 1. Price listings are for each half-ounce, the only exceptions being Hawaii, Canada, Mexico, and the Canal Zone. Air mail to the latter points is listed per ounce in accordance with price changes effected October 1.

# PICAO Group Sees Navigation And Radar Equipment Displayed

## International Forum Evaluates Radio and Electronic Devices

A SYSTEMATIC three-week demonstration of U. S. air navigation and communications equipment came to a close for technical observers of the Provisional International Civil Aviation Organization (PICAO) on Oct. 26, after some 50 types of radio, radar, and other electronic devices had been exhibited in flight and aground to 150 delegates of 38 foreign countries.

Primary objective of the program was to familiarize representatives of PICAO member states with all present and currently projected aids to air navigation, preparatory to standardization of international flying facilities. The U. S. demonstrations, which opened and concluded in New York, followed a similar exhibit of British products in the United Kingdom, Sept. 9-30. Demonstrations of Australian and Canadian equipment were witnessed in Canada on Oct. 28-29, after which the delegates convened in Montreal with the aim of determining which of the many systems will be specified for international adoption.

✦ Bulk of the elaborate U. S. displays, developed through the combined efforts of the Civil Aeronautics Administration, Department of State, Army, Navy, Coast Guard, aeronautical radio manufacturing companies, and commercial airlines, was concentrated at the CAA technical development center in Indianapolis, Oct. 9-23. There spectacular static exhibits set the stage for actual flight demonstrations of U. S. equipment and systems offered for PICAO consideration.

Dual competitive elements permeated the show: while there was obvious comparison of U. S. products with previously viewed British devices, there were also cross-currents of rivalry among those U. S. manufacturers sponsoring different equipment designed to meet a common navigational need.

In welcoming the delegates to CAA's technical development center at Indianapolis, Civil Aeronautics Administrator T. P. Wright stressed the imminent necessity for uniformity in international civil air facilities. "We are dealing with a subject which involves expenditures of millions of dollars," Wright stated. "This implies that, once having established a system, it would be very difficult if not impossible to change. As in the case of all standardization, there exists the implication of freezing the selected system for a long period of time, and to some extent this means stifling development." Thus, the responsibility of the delegates, when they meet in Montreal Oct. 30 to evaluate the various systems is "indeed great," Wright concluded.

✦ William A. M. Burden, Assistant Secretary of Commerce for Air, told the PICAO representatives that while they must be guided primarily by technical factors in making their standardization decisions, the economic element also warranted consideration. This includes, he said, both the initial cost of the equipment and the operational expense. "As civil aviation

grows to the point where it is becoming a medium of mass travel," he warned, "pressure from competitive means of surface transport will undoubtedly be exerted to the end that aviation must ultimately bear the full cost of operating the navigational aids."

With apparent reference to four Soviet Russian observers present, Burton declared, "We are particularly happy to see representatives of other states not yet members of PICAO here as observers, and I hope they will continue to take an even more active interest in the matters which engross all those concerned with the operation of international airlines."

✦ Among the equipment and systems involved in the extensive U. S. demonstrations were LORAN and APS-10; LANAC and NAVAR, systems for traffic control, navigation and collision prevention using radar technique; distance measuring equipment (DME), a radar system giving cockpit indication of distance expressed in miles between the aircraft and a designated ground beacon; VHF omnidirectional range, the CAA system of providing a theoretically infinite number of definable omni-direction tracks from the range station; instrument landing system (ILS); automatic take-off, flight, and landing; automatic direction finders; airborne radio teletype; ground control approach (GCA); CPN-18, airport search; low frequency omni-directional range; altitude separation indicators; digger fixer, combining the output of 2 ADF's for position fixing.

In addition to these major items, there were demonstrations of other more commonly used equipment including air traffic control, approach control, and en route control.

## More Exhibit Area Is Given Aircraft Show

The National Aircraft Show at Cleveland, Nov. 15-24, made available 30,000 more feet of show space on October 11 as a result of the original space allocations being 93% consumed on that date, Clyde Vandenburg, show director, said. To provide this extra space the large aisles will be reduced in width but will still leave room for 40 people to walk abreast.

The Army Air Forces and the Navy will each occupy 72,000 square feet; CAA, 4,000 square feet; NACA, 3,200 square feet; WAA, 1,920 square feet; Information and Registration services, 4,021 square feet; and Show Headquarters, 2,420 square feet.

Over 150 exhibitors, including all government agencies and associations, will present a panorama of aviation, consuming a space equivalent to nine football fields.

Plans are in process for a round-the-world flight over the Gloucester route for a time record with the flight commencing and ending at the Show site. Foreign landing rights have thus far blocked a definite announcement of the flight.

A special forum on aviation affairs will be conducted by the Air Power League. Principal speakers and leaders of discussions will be Charles F. Kettering of General Motors and Lt. Gen. Nathan Twining, Commanding General of the AAF Materiel Command.

## ATA Personnel Chooses Harrison

The October session of the Air Transport Association's Personnel Committee held in Denver chose Malcolm Harrison, personnel manager of Braniff International Airways as the 1946-47 chairman. Representatives of 22 airlines attended the session. Next meeting will be held in Los Angeles the latter part of January.



**At PICAO Show**—Participating in the demonstration of U. S. air navigation aids for PICAO members at Indianapolis last month were Lt. Comdr. Ernest J. Apps, representing Canada, and Reeder Nichols, chief of the international division of Aeronautical Radio, Inc. The two are shown at completion of a flight demonstrating the CAA's instrument landing system.



# CAB Safety Head Asks Changes In Airline Operations Procedure

**Twenty Ideas Put Before Group Of CAB, CAA, and ATA Officials**

**I**MMEDIATE action on safety standards in airline maintenance and operations followed on the heels of CAB Chairman James M. Landis' remarks at the National Aviation Clinic at Oklahoma City last month.

The first development was a closed meeting, held in Washington, with top airlines operations men plus CAB, CAA and Air Transport Association officials present. Landis opened the secret session with general remarks emphasizing the importance of safety, declaring that the constant maintenance of the highest possible safety standards is an absolute "must" for the airlines.

♦ **CAB Vice-Chairman Oswald Ryan** was reported to have called for equal safety standards to apply to both scheduled and non-scheduled carriers.

Following their remarks, Wallace S. Dawson, a former Eastern Air Lines pilot and now director of CAB's Safety Bureau, made a specific, point-by-point survey of particular safety problems which his Bureau—and hence the Board—felt to be of major importance.

The twenty points proposed by Dawson included:

- 1) Separation for CFR (Contact flight rules) traffic on the airways at all times.
- 2) Requiring Supervisory Dispatchers to have airline piloting experience.
- 3) A limit on flight time of 12 hours in each 24 without regard to the number of crew, with a third pilot (of an intermediate grade between captain and co-pilot) re-

quired on all flights of more than eight hours.

4) All night flights to be considered as instrument flights with flight plans required in all cases.

5) Standardization of cockpit control systems in all aircraft as far as possible.

6) Some type of chute for evacuating the passengers of large planes on the ground in case of emergencies.

7) Possible elimination of flares on fast planes because of fire hazard.

8) That integral fuel tanks are a distinct fire hazard in case of a crash.

9) That some consideration be given to setting a maximum tour of duty for pilots, including the question of check-out time required of a pilot between scheduled flights.

10) That the operation of four-engined planes be considered a two-man job and that co-pilots on such planes be required to hold suitable horsepower ratings.

11) That the practice of shifting pilots from one type of plane to another was generally unsatisfactory and might result in operational hazards due to differences in handling qualities and cockpit arrangements.

12) Possible establishment of a minimum number of hours of airline experience to be required before a co-pilot could be eligible for check-out as a captain regardless of previous military or other experience.

13) Careful examination of knowledge of weather problems to be given co-pilots before they are permitted to check-out as captains.

14) Assuring that an instructor and check-out pilot are not the same person.

15) A central training school for co-pilots.

16) Modifying the route qualification requirements of the Civil Air Regulations because they are not "objective" and because much of the route check can be accomplished on the ground.

17) Cutting cockpit paper work to an

absolute minimum with a prohibition on any night work requiring use of overhead lights.

18) Elimination of the small percentage of flight and ground personnel in key spots believed to be unfit for the responsibilities placed on them.

19) Encouraging flight surgeons to find out more about the temperament of their pilots and a pilot's fitness for flight duty, rather than making routine physical exams.

20) Wider use of thermal de-icing, on which the industry should work with plane manufacturers for satisfactory installations of this type of equipment on all new planes.

♦ **Following Dawson's survey**, the meeting was opened to general discussion. George Gardner, National Airlines v.p., is believed to have taken issue with Dawson on several of the points raised. American Airlines' v.p.-operations Lawrence G. Fritz is said to have acted as general spokesman for the airlines. David L. Behncke, President of the Air Line Pilots Association, although invited to attend, was reported to have failed to show up.

All of Dawson's points were up for discussion a few days later as the Operations Conference of the Air Transport Association met in Seattle, Wash. Dawson and A. S. Koch, CAA's Assistant Administrator for Safety Regulation, were scheduled to attend the closing sessions of the Seattle Conference.

## Airline Terminal Corp. Names Callahan, Land As Manager, President

Roy Callahan has been named general manager and Emory S. Land president of the newly organized Airline Union Terminal Corp. Callahan was formerly general manager of the New York City Airport Authority and Assistant Commissioner of Maritime and Aviation while Land continues as president of the Air Transport Association.

Twenty stockholders, comprising most of the airlines, has subscribed \$500,000 to the corporation.

Willow Run airport near Detroit and Cincinnati-Covington airport in Kentucky will see experimental consolidation of airline terminal services soon. Evaluation will be made of consolidating such services as fueling, cleaning, loading and unloading baggage and cargo and direction of taxiing and parking on the ramp plus ticketing passengers, baggage, checking, giving information and handling other passenger and cargo details within the terminal building.

Directors of the company emphasized that all personnel now employed by the airlines to perform these services will be transferred to the terminal corporation rolls if they so desire.

The Airlines National Terminal Service Corp., which, it is understood, is headed by the same men as head the Union Terminal Corp., is now organized and will supervise the operation of the experimental consolidated terminal service.

### Enyert Elected Internationale V.P.

The Federation Aeronautique Internationale elected W. R. Enyert, chairman of the board of directors of NAA, to a vice-presidency at its first post-war meeting in London. Lord Brabazon of Great Britain is the new president. Seven others were elected to vice-presidencies.



**Discuss Passenger Service**—The passenger service committee, Air Traffic Conference, Air Transport Association, met last month in Atlanta, Ga., to discuss problems relating to improvement of service standards. Shown standing, left to right (individuals shown are passenger service officials unless otherwise designated): Don Magarrell, vice president-passenger service, United Air Lines; F. Bostrom, McConnell Schools, which is training stewardesses for three airlines; John Sutton, Delta; William Urquhart, PCA; Eric Bramley, executive editor, American Aviation; Al Aldridge, Braniff; John Stickney, Eastern; Frank Wedder, Sky Chiefs Inc.; E. P. Beddoes, Northeast; Fred Brown, United; Verne Milligan, Mid-Continent; C. C. Hubbard, Air Transport Association, and Tom Conley, American. Seated are James K. Dobbs, Dobbs Houses Inc.; Carolyn Dixon, Delta's chief stewardess; Helen Bowen, National; Mary Wallace, Eastern's chief stewardess; Aileen Mook, National's chief stewardess; Roy Whitney, Chicago & Southern; Kay Hartman, PCA's chief stewardess, and Zell McConnell, McConnell Schools. Present but not shown was C. E. Kaul, TWA. Bramley spoke to the group on "The Airline Industry's Responsibility in Upholding Service Standards."



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# British Engine Developments Set Pace for U. S. Research

## English Choose Turbines Over American Favored Jet Engines

By CHECK-LIST

(Editor's Note: This is the second and final article in a series discussing the current picture of Britain's aviation industry.)

**THE ENGINE** situation in England is, of course, enviable. That envy can be lessened by the knowledge that even the British, with their obvious lead on jet and turbo-prop development, admit that there is a lot of work to be done before either of these forms of power plant are fit for commercial operations. As a personal guess, it does not seem likely that there can be turbo-prop engines in operation on the airlines for two years, and it may take longer than that to lick the operational disadvantages of the jet—notably, its high fuel consumption. The early and over-optimistic statements regarding the simplicity of development programmes have not been borne out. Once more, it is proved that there is no magic road to efficiency. It is safe to say that the snags encountered in England will be met over here also, although the British pace-making may help a little.

♦ **The success of the Rolls Royce engines** in the Meteors, and the de Havilland, Halford-designed, power plants of the Vampires, is well known, but there are other engine manufacturers coming along with soundly-designed and progressive types, notably Bristol and Armstrong-Siddeley. The Rolls Royce "Derwent V" turbine-jet is now giving a maximum static thrust of 4,000 lbs. for a weight of approximately 1,250 lbs., and the de Havilland "Goblin" gives 3,700 lbs. for a weight of 1,560 lbs.

In the turbine-propeller class, Rolls Royce have the "Clyde" with contra-rotating propellers and a power of 3,000 h.p. with 1,200 lbs. of static thrust. Engine speed is 6,000 r.p.m., and the weight is about 2,500 lbs. without the propellers.

The Bristol Engine Company also have designed the "Theseus," a turbine-propeller engine, which has an axial-flow and a centrifugal compressor in series driven by a two-stage turbine. A third turbine wheel drives the propeller through a double reduction gearing, the shaft drive for this passing through the hollow shaft of the two-stage turbine and compressors.

Details, so far released for this engine, give its weight as 2,500 lbs., engine speed as 9,000 r.p.m. and the horse power at the propeller as 1,950 h.p., with some 500 lbs. of static thrust at the jet pipe.

The Armstrong-Siddeley "Python" turbine-propeller engine has an axial-flow compressor coupled directly to a two-stage turbine. The shaft horse power is 3,600 h.p., and the thrust at the jet pipe is 1,150 lbs. The engine weight is 3,140 lbs. A subsequent design by this company, the "Mamba," is to be fitted to the Brabazon IIB Aircraft, which is to be built by their associated company, Armstrong-Whitworth of Coventry.

♦ **It is emphasized that, although there is much development work on these and other turbine-propeller engines going on in England, nobody is laying claim to having licked all the problems that are cropping up every day.** Nor, for that matter, do people visualize the sudden demise of the internal-combustion engine. In five years' time, perhaps the balance between these two forms of power unit may be an even one, with a subsequent decline in the use of the reciprocating engine. But where ultra-long range is required, the existing power units still have the lead and may even be able to retain it for a further period by using "compounded" engines.

While on the subject of jets, there has been too little mention of the appreciation felt in England amongst those who know of the meticulous way in which the war-time promises dealing with jet patents have been honoured in the States. It is now common knowledge that technical information in this field was exchanged by the British during the war on the understanding that it would be used by the American firms for war purposes only. Never were promises more rigidly observed, and on the return of the British representatives who had negotiated the final payment for the peace-time use of such patents, a statement was issued remarking specifically on the extreme co-operation and remarkable sincerity and frankness of the officials with whom these negotiations were concluded.

♦ **So far as Airline development in England goes, the most widely discussed and provocative situation was that produced by the purchase of the Constellations.** This was obviously not made better (particularly for its protagonists) by the sad histories of mid-Summer. It is nice to

relate, however, that although there were plenty of people who were not outspoken in their condemnation of this purchase, their comments on the grounding of these aircraft were more often ones of sorrow, than of the there-you-are, I-told-you-so kind.

Everybody seemed to feel that the incident was one which might happen to any company, anywhere, and that sympathy was more in order than exultation over another fellow's troubles. How the "buy British" school has reacted to the Boeing "Stratocruiser" order is unknown, but one is willing to bet that some pretty heavy bricks were thrown. As a long-time supporter of the "buy American for the time being" school, one hopes that the necessity of this choice will be realized and not too many harsh words spoken.

♦ **In England the flying boat receives much more support than it does in this country.** Both Short Bros. and Saunders-Roe are building big flying boats, which will presumably be used on the Empire routes. England's long-time heritage as a sea-going Nation must obviously tend to support such a move, and one wonders whether those who still claim that the flying boat has its place in the world's transports haven't got more to their case than is sometimes admitted. Strategically, the long-range boat must be developed, and if more advanced ideas on its design can make it a paying commercial proposition as well, all the better.

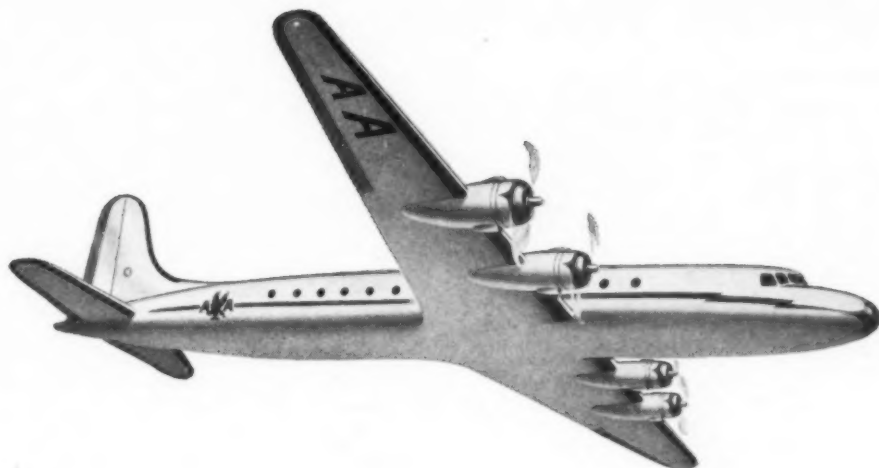
As a final comment, and to show that in the transportation field of aviation (as in the others) there is no magic road to success, one would say that the British Airlines are coming in for just as much criticism as are those over here. Personally, one thinks that most of such criticism, in both countries, is justified, and no one airline is much better than any other. If shades of distinction are to be drawn, then maybe the passenger handling of the British Lines is better than the American, and a definite attempt seems to be made by B.O.A.C. to remove some of the mystery and witch-doctory with which some other lines like to surround their workings—particularly when things go wrong or get off schedule.

The comfort and noise level is undoubtedly better in American designs, as are—understandably—the food and similar services. Baggage handling is at an average low in both countries, but the Customs and Immigration at La Guardia Field have shown a most astonishing improvement. For speed and efficiency, they were far and away better than any other country visited—a welcome change from one's experiences there of some ten months ago.

♦ **But air travel can never be really popular** until passengers can go and buy their tickets with ease, can carry, or otherwise have transported for them, a reasonable amount of baggage, can be sure of getting away on time and arriving reasonably on time, and receive during their journey, and particularly when things go wrong, service and attention due to grown and intelligent beings—not petulant brush-offs that would insult a child of ten. There are, also, far too many crashes due to bad flight planning, overload take-offs, or pure finger trouble. (If this sounds sour, one is quite prepared to admit that one still hates being flown by somebody else!) But in any case, the one thing which will improve all the petty troubles and irritations that now beset us is International competition, and there is plenty of that cooking.



**Primary Trainer—** Flight tests on the XNQ-1, new Navy primary trainer, have proved satisfactory thus far and Navy fledgling pilots may soon be tangling with this 320 hp. all metal model. If they do, it will be the first time Navy novices have had to operate controllable pitch prop, flaps and retractable landing gear, which this Fairchild designed trainer incorporates.



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# DDL Operations Back to Normal With 19-ship Fleet, New Routes

## Nazi-Controlled, DDL Stemmed War With Only One Aircraft

By DANIEL S. WENTZ II

**I**N THE eighteen months since Denmark was liberated from Nazi control, Det Danske Luftfartsselskab A/S (Danish Air Lines—DDL) has resumed its place of leadership among European airlines. In that brief time, DDL has expanded from the single Focke-Wulf FW 200 "Condor" it had on Liberation Day—May 5, 1945,—to a present fleet of 19 ships; it has reopened most of the routes it flew before the war; and as a participant in Scandinavian Airlines System (SAS) it has opened trans-Atlantic hops to New York.

This quite enviable record is much more than mere circumstance. Behind it lies 28 years of airline experience (DDL, founded in 1918, claims it is the oldest European air transport company in existence today) plus a great deal of hard work and careful planning.

♦ **During the war**, DDL found itself squarely under the German thumb. The German airline Deutsche Lufthansa, made no open move to take over its operation, but DDL officials were sure that absorption was Lufthansa's ultimate plan. On the plea that an airline is no good if its organization is allowed to rust, DDL was permitted to keep a Junkers JU-52 and a Focke-Wulf Condor in service. The JU-52 cracked up in Vienna in 1943, leaving the company with only one four-engined Condor. This ship, however, was flown in almost continuous service, on a route from Munich via Berlin and Copenhagen to Malmö, in neutral Sweden. This route was one of Germany's last remaining contacts with a neutral country, and through Sweden, with the Allied world.

As if to demonstrate openly their faith in DDL's future, the officers and directors of the company arranged during the height of the occupation, in 1943, to increase the airline's capital from 3,000,000 Danish kroner (approx. \$630,000) to 15 million kroner (\$3,150,000). This figure represents the present capitalization of the airline. Seventeen percent of the stock is held by the Danish Government, and the balance by Danish citizens, companies and institutions, except six percent held by non-Danish interests. Shipping and manufacturing companies and several strong banks own sizeable blocks of shares. With the exception of the Government's seventeen percent, which remains a constant holding, DDL stock is traded on the open market. The Government does not use its interest to control the operations or program of the airline.

♦ **H. R. H. Prince Axel**, a member of the Danish royal family who has gone into business, is President of DDL's Honorary Board of Directors. Prince Axel is also Managing Director of the East Asiatic Company, a powerful Danish mercantile firm which has an interest in DDL. Per Kampmann, a civil engineer, is President of the Board of Directors. Vice President of the DDL Board is H. P. Christensen, who is President of the Danish Industrial Council. Other Board members hold parallel posts in Danish life.

The operating head of the airline is Knud Lybye, President and General Man-

ager. (Per Kampmann and Knud Lybye also serve as DDL members on the Board of Scandinavian Airlines System). Sales and traffic are in charge of P. Beck Nielsen, a vice president. Nielsen's assistant, V. J. Rasmussen, spends much of his time on traffic problems. Boris Gormsen, also in the traffic department, handles DDL's relations with the European Traffic Conference on the International Air Transport Association.

Other officials of the airline are Sv. Hansen, Chief Engineer; E. Damm, vice president-operations; and William Damm, vice president-financial.

♦ **At present**, DDL's fleet contains 11 DC-3's; two DC-4's which are assigned to the SAS service; one FW 200 Condor (four engined); one Fokker F-XII (trimotor); three Junkers JU-52's (trimotored); and one converted B-17 Flying Fortress, used for charter trips and special missions. The Fokker F-XII will soon be taken out of service because spare parts for it are no longer available.

Because foreign exchange is a highly vital problem in Denmark, and because the country's dollar balance with the U. S. is much less favorable than its sterling balance with Great Britain, DDL's next new passenger planes will be British built. On order for delivery early in 1947 are five Vikers Vikings, twin engined, 21-passenger, 220 mph. ships. These will be powered by Bristol "Hercules" engines. The prospect of quicker delivery was also a factor in selecting the Vikings. Top officers of DDL say, however, that their next plane order will be placed in America. The Martin 2-0-2 and the Consolidated-Vultee 240 are being considered.

♦ **This fleet is currently in European and Danish domestic service** flying slightly more than 7000 scheduled miles per day.

DDL's operations are governed largely by two factors, both virtually unknown in U. S. commercial aviation. The first is the schedule-splitting agreement: the second is IATA's European Traffic Conference. Schedule splitting, which has replaced the old pre-war pooling arrangements in nearly all cases, amounts simply to an agreement between two companies to match operations schedule for schedule.

♦ **The basic IATA passenger rate is 6 cents per passenger kilometer** (about 9.6 cents per passenger mile). This rate is normally raised or lowered depending on competition on a given route. For example, on the competitive Copenhagen-Stockholm route, DDL charges only 5.6 cents per mile; on the non-competitive Copenhagen-London route, the fare jumps to 12 cents per mile.

Following European custom, surface transport to and from airports is always included in the price of the airline ticket. At least 45 percent of all DDL tickets are sold through travel agencies. These agencies are handled by central space control on the same basis as the airline's own city ticket offices. This method of handling sales is one of the means DDL uses to reduce passenger handling costs.

Express, cargo and excess baggage rates are also set through IATA and apply to all European airlines which are members of the conference. These rates are all figured as percentages of the basic pas-

senger fare. For example, excess baggage is now charged for at the rate of one per cent of the passenger fare per kilometer. Express charges are .8 per cent of the passenger fare per kilometer. To encourage experimentation with air freight, the IATA Conference recently decided to permit air cargo to move at rates as much as 40 per cent below the current charge.

♦ **The mail pay rate**, set by the IATA members by mutual agreement, is presently three and one-half French gold francs per ton kilometer. Translated into U. S. terms this amounts to approximately \$1.82 per ton mile. The rate for Swedish airmail is six gold francs because only surcharged mail moves by air from that country. From Denmark, however, and throughout most of Europe, all first class international mail is carried by air at no extra postage charge. Transatlantic mail still takes extra postage.

As the only Danish airline, DDL carries first class mail from Denmark to other European countries. The Danish postal authorities place outgoing mail aboard whichever carrier is scheduled to arrive at a given point first. In addition to Danish mail, DDL also has contracts for carrying mails from England, Holland, Switzerland, France and Czechoslovakia. Because post office collection times are geared to the airline schedules, a letter posted in downtown Copenhagen will usually be in the air within two hours.

♦ **DDL is currently flying the following routes:**

- 1) Copenhagen-London, three round trips daily. (On a schedule-splitting arrangement, British European Airways operates to Copenhagen four times each week.)
- 2) Copenhagen-Amsterdam, daily service (Schedule splitting agreement with Royal Dutch Airlines (KLM)).
- 3) Copenhagen-Brussels, twice weekly service (Schedules split with Swedish Air Lines (ABA) and Sabena, the Belgian airline).
- 4) Oslo-Copenhagen-Frankfurt a/m-Zurich-Marseilles, daily service, flown by DDL and DNL (Norwegian Airlines) on alternate days.
- 5) Copenhagen-Prague, twice weekly service (Schedules split with Swedish Air Lines (ABA) and Ceskoslovenske Aeroline (CSA)).
- 6) Copenhagen-Malmö (in southern Sweden) twelve schedules daily. (By agreement, DDL flies the route for six months of each year with ABA taking over for the other six months.)
- 7) Copenhagen-Stockholm, two daily round trips (Route also flown by ABA, KLM, and CSA).
- 8) Copenhagen-Gothenburg (Sweden)-Oslo, one daily round trip. (Operated jointly by DDL and DNL).
- 9) Aalborg (Denmark)-Gothenburg, three round trips weekly.
- 10) Aalborg-Oslo, daily service.

In Danish domestic service, DDL operates three daily round trips to Aalborg, one daily round trip to Aarhus, and two to Roenne, on Bornholm, the Danish island in the Baltic which flashed into the headlines early this year when it was occupied by Soviet troops.

Under the IATA experimental cargo rate program, DDL is moving rapidly into the air freight field. Already three of its DC-3 type planes are fitted as all-cargo ships, and it hopes to get six more shortly. The airline is sure it can make a profit at the reduced rate, which is generally below surface carrier rates for an equivalent trip. The main problem to be licked, they say, is return loads. Danish fish have been flown to Southern France, Italy, and Switzerland, and return flights have carried fresh fruits and cotton textiles. This is only a beginning, but DDL is convinced it can make cargo operation pay and pay well.

# KLM ROYAL DUTCH AIRLINES

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# 12 New Convair-240's!

**KLM Royal Dutch Airlines**, with its vast network of air routes serving five continents, is the fifth major airline to order a fleet of America's most modern twin-engine airliners—Convair-240's.

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vanced comfort features as *air conditioning and pressurized cabin*.

The new Convair-240 airliner will be in service by mid-'47, on KLM, as well as on American Airlines, Pan American World Airways, Western Air Lines, and Continental Air Lines. It will carry 40 passengers with a new high standard in air-travel comfort and convenience. Watch for it!



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planes by Consolidated Vultee during the war. Wings and tail are heated—ice and snow melt on contact.

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## Slick Airways Boosts Airfreight Charges In Face of Rising Costs

Faced with increasing operating costs, Slick Airways hiked its airfreight charges, effective Oct. 1. The increase amounted to about one cent per ton mile, so that the company's rates now range from 12 to 21½ cents, depending on volume.

Rates formerly were as low as 11 cents per ton mile. Earl F. Slick, president, said the increase was necessitated by rising costs of maintenance, fuel, wage increases and raises in pickup and delivery truck rates.

✦ Slick at the same time spiked rumors that his company was contemplating merger with any other non-scheduled carrier. He said the rumors in some cases had reached such a stage that competing carriers were trading on them to secure business from Slick customers.

Slick has filed a registration statement with the Securities and Exchange Commission covering 62,500 shares of \$10 par common stock options to be offered employees. The move is in line with the company's plan to broaden ownership in the company through increased employee participation.

Despite crippling truckers' strike at New York-Newark, Slick's biggest shipping depot, the air freighters hauled more than a million ton-miles for the month of September. Total for September was 1,261,114 ton-miles, just 213,577 short of the all-time Slick high of August.

## New Company Bidding for Norfolk-Carolina Territory

Norfolk and Morehead City and interim points were joined by a new air service recently with the inauguration of air freight and passenger transportation by the Ocracoke-Manteo Transportation Corp. Operations are centered at the Roanoke Island Airport.

Twin-engined Cessnas, two Wacos and two lighter ships will be used in the Norfolk-Morehead run. The company has applied to CAB for certification over this route.

## Santa Fe Railway Will Apply For Mail Permit

Fred G. Gurley, president of the Atchafalaya, Topeka, and Santa Fe Railway, declared at recent appearance in New York that Santa Fe Skyway, the railway's contract carrier air transportation unit, will apply to the Civil Aeronautics Board for a certificate authorizing it to carry U. S. mail.

✦ Gurley said that the CAB ruling against air operations by railroads on a certificated basis was "an artificial line of demarcation between types of transportation services," and that the ruling has hindered the coordination of air and surface operations in transportation, where it is helpful.

He explained that the railway had entered into aviation to use all possible technological advances, and expressed belief that his organization "can continue to satisfy the wishes of the Post Office Department by this new method."

## Noville Goes With Flying Tiger Line

George O. (Rex) Noville, pioneer of air cargo, is the new vice president and general manager of The Flying Tiger Line.



Noville

Noville's career includes military and naval service with Gen. Billy Mitchell on the Army's first world spanning flight in 1923 and Admiral Byrd's Arctic and Antarctic expeditions. Commercially, he has served as general manager of Hawaiian Airlines and Cargair, Inc. and in many engineering and advisory posts. He most recently reorganized flight operations for Royal Dutch Shell in South America.

## AAXICO Flies Cuba Package Cruise

Offering nine-day package cruises for single-week vacationists, the American Air Export-Import Company has augmented its New York-Havana passenger service with an all-inclusive tour. The DC-3 round trip and hotel and sightseeing expenses will cost the holiday customer \$175 plus tax. Planes will leave on a Saturday, return the following Sunday week.

## First 'Copter Training Begins in New Jersey

Training Sikorsky helicopter pilots has become a commercial venture for the first time. Helicopter Air Transport of Camden, N. J.—the only existing commercial helicopter operators in the country—have instituted a school for that purpose and it is now in full swing.

Using S-51S type helicopters for instruction, the school will accept only pilots with a minimum of 500 hours flight time as students.

Ex-Major Frank T. Cashman is in charge of the new training medium. Cashman, who was senior pilot and chief instructor at Wright Field until his recent discharge, holds the helicopter distance record in view of his flight from Dayton to Boston.

Sikorsky Aircraft Company has okayed the new school. Curriculum of the helicopter training adheres closely to approved AAF helicopter instruction.

## Kail Named Vice President Of Operations for AAXICO



Kail

J. Seymour Kail has been elected vice president in charge of operations and traffic for American Air Export - Import Co., Miami. He was formerly chief pilot for the company. Prior to joining AAXICO, Kail was a Navy flier and flew as senior pilot for Pan American Airways.

## \$121,346 in Trans-Caribbean First Month 4-Engine Gross

During the month of September, its first of four-engined service Trans-Caribbean Airways grossed \$121,348.70 for passenger and cargo revenue. This figure represents a sharp rise for company intake, according to C. Roy Chalk, company president. Chalk estimated that fourth-quarter volume would be even greater.

Trans-Caribbean Airways of Cuba, an associate company, has been granted a Certificate of Public Convenience and Necessity by the Cuban government covering a route from Havana to Montreal. Scheduled operations will begin as soon as diplomatic clearance is completed. Chalk pointed out that for the first time Canada and Brazil will have a through air route as a result of Trans-Caribbean's agreement with Cruzeiro de Sul Ltda. of Brazil.

## Deacon Manages Willis in Chicago

Earle W. Deacon has been appointed district manager for the newly established Chicago office of Willis Air Service, Inc. Recently discharged from the Navy Air Corps, Deacon will direct all air freight operations in the Chicago area.

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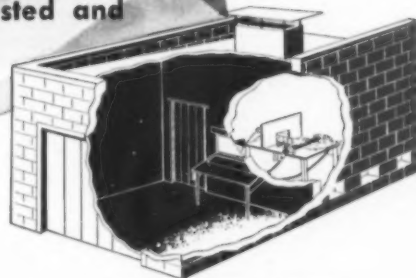
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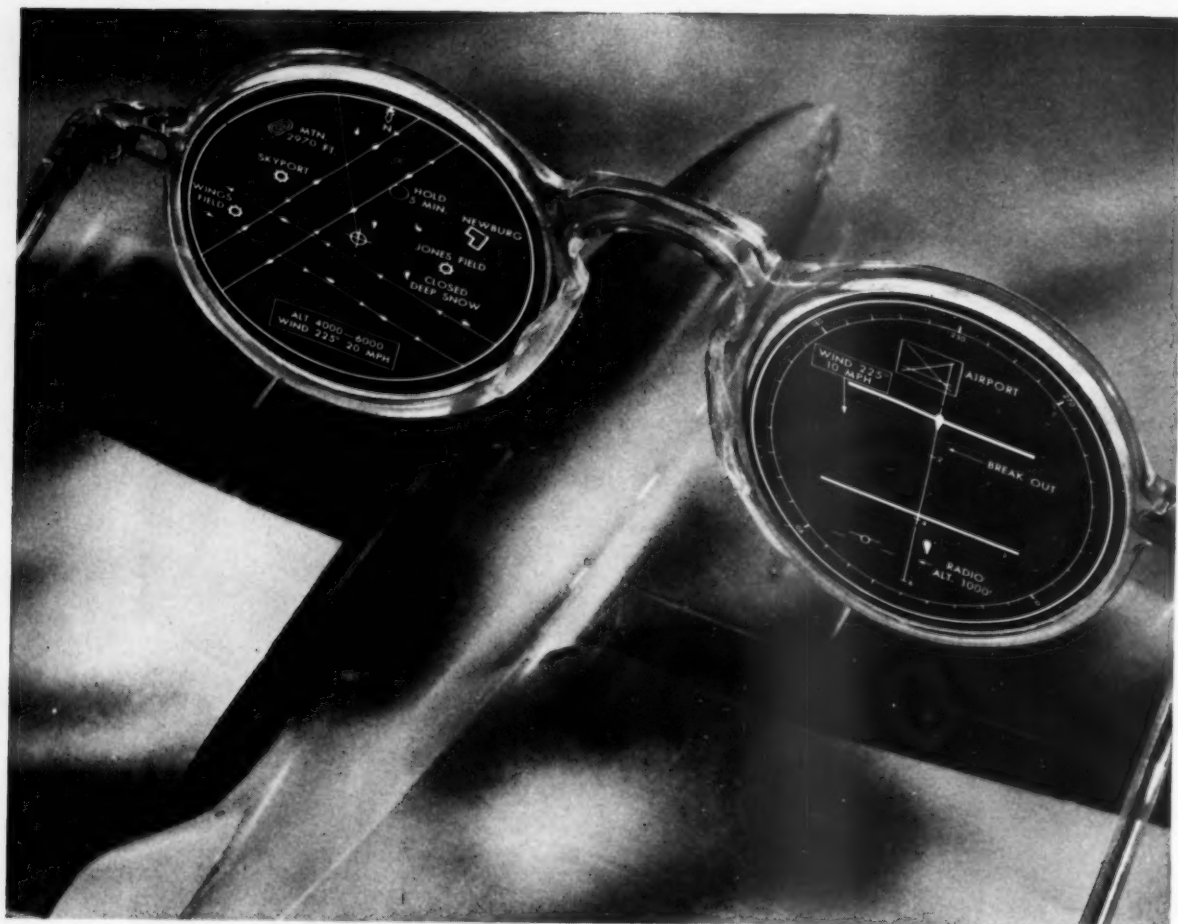
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## Teleran—"radio eyes" for blind flying!

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Teleran (a contraction of *TELE*vision—*R*adar Air Navigation) collects all of the necessary information on the ground by radar, and then instantly transmits a television picture of the assembled data to the pilot aloft in the airplane.

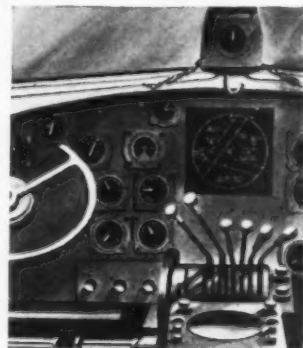
On his receiver the pilot sees a picture showing the position of his airplane and the position of all other aircraft near his altitude, superimposed upon a terrain map complete with route markings, weather conditions and unmistakable visual instruc-

tions. The complex problem of air traffic control is well handled by Teleran.

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# Complete List of Non-Scheduled Operators

A Special Supplement Containing the Names and Addresses of 714 Companies

The following tabulation of non-scheduled operators, compiled by AMERICAN AVIATION from information filed with the Civil Aeronautics Board, represents the first complete compilation of its kind. This listing includes the name and address of the company, its chief executive officer and the kind and types of equipment owned and/or in use by the operator. The list includes 714 companies who filed reports under Section 292.1 of the CAB's economic regulations.

- Aberdeen Flying Service**, Aberdeen, South Dakota. John Paul Bollman, president. Waco and Piper Cub J-3.
- A. C. Flying Service, Ltd.**, P. O. Box 1078, Galveston, Texas. Elmer J. Chalmers and J. C. Arnold, partners. 1 Fairchild 24, 1 Rearwin 8135, 2 Piper Cubs.
- Acme Flying Service**, Box 548, Island Park, N. Y. Murray Greenman, president. Fleetwings, Seabird F-5.
- Aero Flying Service**, Municipal Airport, Wichita, Kansas. R. J. Bullock and A. C. Walts, partners. 1 Stinson, 1 Aeronca Champion.
- Aero Marine Service, Inc.**, Stonington, Conn. Henry R. Palmer, Jr., owner. 1 Piper Cub and Luscombe.
- Aero Training & Transport, Inc.**, Lunken Airport, Cincinnati, O. Thomas S. Baker, president. 1 Stinson 150 and Aeronca Trainers.
- Ainsworth Air Service**, Ainsworth, Nebraska. Donald G. Higgins and George B. Manes, partners. 1 Stinson Voyager 150.
- Airborne Freight & Passenger Service, Inc.**, 15 Malden Lane, New York City. John F. Baker, president. 2 C-47s.
- Air Cargo Transport Corp.**, 350 Fifth Avenue, New York City. H. Roy Penzell, president and treasurer. 14 DC-3s.
- Air Charter Co.**, 3800 Dahlia St., Denver, Colorado. James T. Pyle, president. Equipment omitted.
- Airco Aircraft, Inc.**, 1002 Francis St., St. Joseph, Mo. J. R. Tallafiero, president. 1 Cessna T-50.
- Aircrafters, Inc.**, Rehoboth Beach, Delaware. Clarence C. Platt, president. 1 Stinson 10, 1 Stinson 108, 1 Ercoupe 415-C.
- Air Facilities Corp.**, 53 Broadway, New York City. James Starr 3rd, officer. 1 Lockheed 12A.
- Air Freight, Inc.**, 875 Broad St., Newark, N. J. John K. Hughes, president. 5 DC-3s and 1 Noorduyn Norseman.
- Airgo, Inc.**, Felts Field, Parkwater, Washington. Hillford R. Wallace, president. 2 C-47s. Leases 2 C-47s and AT-11 Beechcraft.
- Airpark Flying Service**, Great Bend, Kansas. G. E. Parrish, owner. 1 Cessna 140, 1 Aeronca CA-65 Chief.
- Air Pick-Up Lines**, Los Angeles Municipal Airport, Los Angeles, Calif. Charles A. Cooper, Jr., president. 1 Cessna UC-78.
- Air Transport Service**, 1320 St. Clare Rd., Mt. Royal, Quebec, Canada. Gilbert S. Tobin, 64 Pease Ave., Verona, N. J. (temporarily located in Canada). 1 Cessna.
- Air Travel, Inc.**, 291 Geary St., San Francisco, Calif. George W. Tompkins, president and treasurer. 1 Douglas C-54B.
- Airworthy Services, Inc.**, Bates Field, Mobile, Alabama. George Denniston, president. 3 Luscombes A-65 Silhouette; 1 Stinson 150.
- Akron Airways, Inc.**, Municipal Airport, Akron, Ohio. R. A. Van Devere, president. 4 Cessnas, 1 Stinson 150, 12 Pipers, 2 Vultee BTs, 2 Stearman, 1 Ryan.
- Alamo Airlines Services, Inc.**, Municipal Airport, San Antonio, Texas. Jack C. Neal, president. 2 Cessna T-50s, 1 Stinson SR9C.
- Albany Air Service**, Box 591, Municipal Airport, Albany, Georgia. W. L. Hall, president. 1 Cessna T-50.
- Albany Airways, Inc.**, Box 591, Municipal Airport, Albany, Georgia.
- Albany Seaplane Base and Flying Service**, foot of Malden Lane, Yacht Club Basin, Albany 7, N. Y. George J. Holbine and Herbert A. Werts, partners. 1 Piper Cub Special.
- Alexandria Aviation**, Alexandria, Minnesota. A. D. Olsen, president. 1 Stinson 150.
- Allegheny Air Cargo, Inc.**, Allegheny County Airport, Pittsburgh, Pa. David B. Oliver, president-treasurer. Equipment omitted in report.
- Allen Aviation Service**, Liberty Life Bldg., Topeka, Kansas. John O. Allen, owner. Single-engine landplane.
- Allied Air Freight, Inc.**, 1060 Broad St., Newark, N. J. Bernard F. Flynn, registered agent. No aircraft presently owned.
- Al-Ma Air Transport**, Hubbard Field, Reno, Nev. Mary M. and Alfred DuFault. 1 Cessna T-50.
- Allmon & Tuttle**, 315 Administrative Bldg., Municipal Airport, Wichita, Kansas. R. C. Allmon and Stephen Tuttle, partners. 3 Beechcrafts, 1 Cessna, 2 Vultees, 1 North American.
- American Air Export and Import Co.**, Army Hangar No. 1, 36th St. Airport, Miami, Florida. Charles A. Carroll, president. 7 DC-3s.
- American Air Express Corp.**, 522 5th Ave., New York City. John C. Lambert, president. 3 DC-3s.
- American Air Transport and Flight School, Inc.**, 500 Curtiss Parkway, Miami Springs, Fla. T. W. McGahey, president. 1 DC-3.
- American Fly Away Service, Inc.**, Dayton Municipal Service, P. O. Box 1, Vandalia, Ohio. Leon W. Wilder, president. Aeronca, Ercoupe, Swift, Cessna, Luscombe, Stinson, Piper Cub, Taylorcraft, Skyraider, Culver, Skycraft, Rocket, Bellanca, Seabee, Trimmer, Navion, Fairchild.
- American School of Aeronautics, Inc.**, LaFleur Airport, Northampton, Mass. Harold W. Cowper, Jr., president-treasurer. Equipment on order.
- Albert E. Anderson**, Box 339, Brainerd, Minn. A. E. Anderson, owner. Taylorcraft BU2, Piper Cub J-3, Stinson SR5A.
- Andy's Flying Service**, Morris, Minn. Andrew Harry Joranger, owner. 1 Cessna 140, 1 Taylorcraft L-2, 1 Piper J-5.
- Appleton Aviation Service**, Appleton, Minnesota. J. H. Johnson, owner. One two-place landplane.
- Arizona Airways, Inc.**, Adams Hotel, Phoenix, Ariz. H. O. Nelson, president. 2 C-47As, 2 C-47.
- Arizona Aviation Service**, Safford, Ariz. J. E. Poer, owner. One single-engine plane.
- Arkansas Valley Aviation Co.**, Lamar Municipal Airport, Lamar, Colo. Gene C. Vance, owner. 1 Luscombe 8A.
- Armstrong Krebs Flying Service**, Scott City, Kansas. Robert Armstrong and Floyd M. Krebs, partners. 2 Piper J-3.
- Arrowhead Airways**, Box 623, Hibbing, Mich. L. Millar Wittig, owner. Wacos.
- Arther Air Field**, 2803 West Pawnee, Wichita, Kansas. J. L. Arther, owner. 4 Aeronca 7AC, 1 Aeronca Chief, 1 Fairchild 24.
- Associated Aviation Co.**, Lunken Airport, Cincinnati, Ohio. Vincent J. Roach, partner. Lease Cessna.
- Associated Callens, Inc.**, Municipal Airport Roswell, N. Mex. Richard D. Callens, president. 2 Ercoupes, 1 Luscombe, 1 Vultee, 1 Cessna.
- Atlantic Air Charter Flying Service**, 1235 N. E. 98th St., Miami, Fla. J. H. Patterson, president. Equipment omitted.
- Atlantic Air Lines**, 1600 Walnut St., Philadelphia, Pa. Edward A. Gallagher, Jr., owner. Equipment omitted in report.
- Atlantic Central Airlines**, Newark Airport, Newark, N. J. Lockheed Lodestars.
- Atlantic Gulf & Midland Corp.**, Wurtsboro Airport, Wurtsboro, N. Y. James T. Clark III, president. 1 DC-3.
- Atlantic Western Airlines, Inc.**, Municipal Airport, Danville, Va. V. D. Lovelace, president. 5 Waco five-place cabin planes, 2 Cessnas.
- Aviation Service Co.**, P. O. Box 32, Hartford, Conn. Titus P. Matuszewicz, president-treasurer. 1 Cessna 140, 1 Taylorcraft.
- Aviation Services, Inc.**, Maryville, Missouri. M. O. Anderson, president. Ercoupe, Piper Cruiser.
- Aviation Schools & Service**, Blairstown, N. J. Frank Pittenger, president. Stinson.
- Noble Ayer**, 1610 Walnut Street, Owensboro, Ky. Owner. 1 Aeronca 7-AC.
- Baalmann, Inc.**, Lambert Field, St. Louis, Mo. Roderick Baalmann, president. 1 Fairchild.
- Charles H. Babb Co.**, Grand Central Airport, Glendale, Calif. Sole owner. 1 DC-3, 1 Beech C-45, 1 Cessna T-50 and two single aircraft.
- Baca Airways**, Hayward Municipal Airport, Hayward, Calif. Julius J. Byrd and Robert C. Overfelt, partners. 1 Cessna T-50, 1 Luscombe 8A, 1 Skyraider, 1 Aeronca.
- Bailey Flying Service**, Chillicothe, Ohio. A. N. Bailey, owner. 3 Taylorcraft, 1 Waco, 1 North American AT-6, 1 Piper J-3, 1 Piper J-5, 2 Fairchild, 1 Ercoupe.
- Donald W. Bair**, Bradshaw, Neb. Owner. 2 Piper J-3, 1 Taylorcraft, 1 Cessna 140.
- C. P. Baker**, West Plains, Missouri. Owner. 1 Taylorcraft B-12.
- Ball-Ralston Flying Service**, Hillsboro Airport, Hillsboro, Oregon. Edward J. Ball and N. W. Ralston, partners. 1 Vultee BT-13A, 1 Ercoupe, 1 Fairchild PT-19, 1 North American AT-6, 3 Piper J-3, 1 Piper J-5.
- Basler-Musgraves Flying Service**, 703 Taylor Ave., Crystal City, Mo. Geo. J. Basler and John D. Musgraves, partners. 1 Stinson 150.
- Barnegat Aviation, Inc.** (Sportsman's-Executive's Air Service), Llewellyn Park, West Orange, N. J. W. S. Winans, president. Ercoupes.
- Ray L. Baumgardner**, Fort Stockton, Texas. Owner. Piper Cub Cruiser, Ercoupe, Curtiss Jr.
- Bay Meadows Aviation Corp.**, Bay Meadows Airport, San Mateo, Calif. Albert C. Hartman, Jr., Jack A. McCaw and Donald L. Myers, partners. 3 Cessnas, 2 Stinson 105s, 1 Stinson 150, 1 Piper Cub, 1 Culver, 1 Taylorcraft.
- B&B Flying Service**, P. O. Box 474, Roswell, N. M. Harry F. Burkstaller, Herman F. Burkstaller, Jr., William B. Burkstaller, partners. 2 Piper J-3, 1 Piper J-5, 1 Cessna 140.
- Beatrice Flying Service**, Municipal Airport, Beatrice, Neb. Donald W. McBride, owner. 1 Cessna UC-78, 4 Pipers and 1 NA AT-6.
- Beaty Air Sales**, Municipal Airport, Independence, Iowa. George V. Beaty and James O. Smith, partners. 1 Cessna T-50, 2 Aeroncas.
- Beaver Air Express, Inc.**, 149 Essex St., Malden, Mass. Julius Goldman, president. Equipment omitted in report.
- Beebe Air Service**, Municipal Airport, Hastings, Neb. L. C. Puckett and Grace D. Beebe, partners. Cessna C-37, Piper Cub Cruiser, Aeronca Chief.
- Belding Aircraft & Sales**, Belding Airport, Belding, Mich. Mary Ellen Ungerer and Marjorie J. Johnson, partners. 3 Aeronca 7-AC.
- Beloit Air Service**, Beloit, Kansas. Joe J. Moritz, president. 1 Cessna 140, 1 Porterfield, 1 Piper J-3.
- Bemidji Airlines, Inc.**, Municipal Airport, Bemidji, Minn. R. J. Goodrich, president. 1 Noorduyn Norseman.
- Benna & Ward Flying Service**, Red Bluff, Calif. Michael A. Benna, partner. 2 Taylorcraft BC1212.
- Berentz Flying Service**, Box 297, Independence, Kansas. Lynn Berentz, owner. Equipment omitted in report.



Berkshire Aviation Enterprises, Inc., Great Barrington Airport, Great Barrington, Mass. Walter Koladza, president. Piper Super Cruiser, Taylorcraft.

Berryhill Aircraft Sales, Fort Morgan, Colo. Harold L. Berryhill, owner. Piper J-3.

Wilford Betzer, Coldwater, Kansas. Owner. 2 Luscombe 8A.

Bible's Flying Service, P. O. Box 500. Municipal Airport, Las Vegas, N. Mex. Lloyd Bible, owner. 1 Fairchild, 1 Cessna C-37, 1 Cessna 120.

Bierman Flying Service, Yankton, S. Dak. Arvine J. Bierman, owner. 1 Aeronca Chief, 1 Aeronca Champion, 1 Taylorcraft, 1 Culver Cadet, 1 Stinson Voyager, 1 Cessna.

Big Bear City Airport, Box N. Big Bear City, Calif. H. R. Halstead, president. 1 Stinson 150, 1 Stinson L-5, 1 Luscombe, 1 Taylorcraft.

Big Horn Flying Service, Box 689, Greybull, Wyo. M. H. Christler and R. R. Watson, partners. 2 Wacos, 2 Piper Cubs J-3C.

Bilhobs Flying Service, Rt. 2, Savannah, Ga. W. G. Hobbs, owner. 1 Piper J-5.

Bird Airport, Youngstown, Ohio. Conway Bird, owner. 2 Piper Cubs J-3, 1 Taylorcraft, 1 Stearman.

Bismark Flying Service, Bismark, No. Dak. William A. Marks, manager. 1 Taylorcraft, 2 Piper J-3s.

Bialne Airways, 305 West End Ave., New York City. Stanley B. Bialne, president. 1 Cessna T-50.

Blair Flying Service, Blair, Nebraska. Bryon L. Appleby, owner. Equipment omitted in report.

Blatz Airlines, Inc., 1109 W. Florence Ave., Los Angeles, Calif. F. Alfred Blatz, owner. 1 DC-3.

Bluegrass Airlines, Russellville, Ky. B. Marvin Stuart, John E. Stuart and Marvin W. Stuart, partners. 3 Cessna UC-78s.

Blue Mound Air Service, Luverne, Minn. Francis L. Corwin, officer. 2 Piper J-5, 1 Taylorcraft.

Bluff's Aviation Sales Co., Scott's Bluff, Nebraska. Fred Schoenrock and Edwin Slevers, partners. 2 Fairchild F-24s, 3 Ercoupes, 2 Aeronca 7-ACs.

Bob's Flying Service, Montevideo, Minn. Robert A. Claggett, owner. 4 Piper J-3s, 1 Piper J-4, 1 Luscombe 8A.

Border Aircraft Service, Rio Grande Valley, International Airport, Brownsville, Texas. R. W. Stone, owner. Globe Swift.

Borger Air Service, Box 767, Borger, Texas. Hudson Davis. 2 Taylorcraft, 2 Aeroncas.

Boulder Flying Service, Boulder, Colo. David M. Brown and Marvin O. Williams, partners. 1 Piper J-3.

Bourassa Flying Service, Custer, S. Dak. Carl Bourassa, owner. Luscombe 8A.

Boyd Aero Service, Old Municipal Airport, Santa Fe, N. Mex. Charles J. Boyd, owner. Cessna C-145, Piper Super Cruiser.

Braden's Flying Service, Easton Airport, Stockertown Rd., Easton, Pa. Edwin S. Braden, owner. Piper J-3, Piper P-12, Cessna.

Bram-Air Service, Inc., Municipal Airport, Clarion, Ohio. Raymond A. Bramer, president. Unspecified single-engine aircraft.

Brandt Aero Service, 119 Administration Bldg., Holman Field, St. Paul, Minn. O. A. Brandt, and Florence Ellingsen, partners. 6 Aeronca 7-ACs, 1 Aeronca 11-AC, 1 Stearman PT-17, 1 Waco.

Brayton Flying Service, Inc., Lambert Airport, St. Louis. Clyde E. Brayton, president. 16 Cessna UC-78s and AT-6s.

Bressler's Air Service, Gratz, Pa. Clifford R. W. Bressler, and Lyle M. Bressler, partners. 1 Cessna T-50, 1 Piper J-3, 3 Taylorcraft, 1 Vultee BT-13, 2 Fairchilds.

Brownair, Inc., Orange, Texas. Charles E. Brown, president. 2 Piper Cubs, 2 Taylorcrafts, 3 Aeronca Champions.

Brown Service Funeral Homes, First National Bldg., Birmingham, Ala. R. M. Lackey, president. 1 Beechcraft 18S.

Brummett Aircraft Co., Jefferson Airfield, Jefferson City, Mo. J. Raymond Brummett, owner. 1 Waco, 1 Aeronca 7A-C, 1 Aeronca L-13, 1 Piper J-3, 1 Stearman.

Bruning Aviation, Inc., 85 State St., Springfield, Mass. Kenneth W. Bruning, president. 2 DC-3s.

Vance W. Bryan, Hot Springs, Arkansas. Owner. Equipment omitted in report.

Buckhannon Flying Service, Buckhannon, W. Va. Layton L. Tharp, owner. 4 Piper J-3, 1 Piper J-5.

Burton Air Service, Alliance, Nebraska. Lee R. Burton, owner. Equipment omitted in report.

Gordon Buster, Franklin, Nebraska. Owner. 1 Aeronca Chief.

Butcher and Munger Air Service, Municipal Airport, Alliance, Neb. J. O. Butcher and V. L. Munger, partners. 1 Cessna T-50, 1 NA AT-6, 1 Waco UPF7 and 1 Piper.

California Eastern Airways, Inc., Oakland, Municipal Airport, Oakland, Calif. John J. O'Brien, president. 3 C-54As.

Barlow H. Call Flying Service, Box 301, Afton, Wyo. Barlow H. Call, owner. 1 Interstate.

Campbell Flying Service, Inc., Rolla, Missouri. James S. Campbell, owner. 1 Cessna UC-78, 2 Pipers, 1 Taylorcraft.

Cape Girardeau Flying Service, Harris Field, Cape Girardeau, Missouri. Carl E. Wheeler, owner. 2 Aeronca 7-AC, 1 Curtiss J-1, 1 Vultee BT-13.

Capistrano Airways, Inc., Box 205, San Juan Capistrano, Calif. Fred C. Stoffel, president. 1 Aeronca Champion, 1 Piper Trainer, 1 Piper Cruiser 1 Ryan PT-22.

Capitol Flying Service, Holman Field, 221 Administration Bldg., St. Paul, Minn. James G. Willner, Jr., president. 2 Piper J-3 Taylorcraft, 1 Fairchild, 1 Vultee.

Cardinal Aviation, 526 Cooper St., San Antonio, Tex. W. G. Craig, owner. 2 Aeroncas.

Caribbean Air Transport, Inc., News Tower Bldg., Miami, Fla. Roger D. Edwards, president. 3 DC-3s.

Caribbean American Lines, Inc., 229 Shoreland Bldg., Miami, Fla. W. M. Hutchins, president. DC-3s (number not stated).

Caribe Airways, Inc., No. 1 Fernandez Campos, San Juan, Puerto Rico. Arturo Mendez, president. 6 DC-3s, 1 DC-4.

Carson Flying Service, Box 521, Carson City, Nevada. Eddie Chess and Harmon Walker, partners. Cessna UC-78, Aeronca, Taylorcraft.

George Stone Cary, 1235 Boulevard, West Hartford, Conn. Owner. Waco.

Cayuga Airway Corp., 301 S. Cayuga St., Ithaca, N. Y. Peter Paul Kellogg, president. single-engine landplane.

Cedar Flying Service, Inc., Box 737, Dubuque, Iowa. H. N. McAndrews, president. 2 Taylorcraft, 4 Piper Cubs, 1 Fairchild.

Central Aircraft, Inc., P. O. Box 808, Grand Island, Nebraska. David U. Roush, president. 4 Luscombe 8-A, 4 Piper J-3s, 1 Piper PA-12, 1 Cessna C-45, 1 Republic Seabee.

Central Aircraft Sales, Box 229, Marshall, Mo. Sammie Goldin, president. Equipment omitted in report.

Central Air Service, Grand Rapids, Mich. Roswell R. Becker and Floyd J. Becker, partners. 1 Stinson, 1 Cessna, 2 Piper Cruisers.

Central Airways, Inc., Dodge Airport, Des Moines, Iowa. Frank Sanders, president. Equipment omitted.

Central Flying Service, Lambert Field, St. Louis, Mo. Ronald Paul Downs, owner. Ercoupe, Piper Cub Cruiser.

Central Flying Service, Washburn, No. Dak. Clifford H. Beeks, owner. 1 Fairchild, 1 Piper J-3.

Central States Aircraft & Supply Co., Municipal Airport, Ogallala, Neb. Rector E. Searle, owner. 1 Piper Cruiser.

Challenger Airlines, Inc., 518 Felt Bldg., Salt Lake City, Utah. George W. Snyder, Jr., president. 1 Beech D-18S, 2 Vultees, 1 NA AT-6.

C & H Air Service, Inc., Municipal Airport, Wichita, Kansas. W. L. Hartman, president. 1 Cessna T-50, 2 Ercoupes.

Chemung Valley Flying Service, Inc., Waverly, N. Y. Ray E. Cole, president. 1 Cessna T-50, 1 Ercoupe.

Chesapeake Airways, Salisbury, Md. Fred P. Adkin, president. Equipment omitted.

Childress Flying School, Box 227, Municipal Airport, Childress, Tex. James E. Ragdale, owner. 1 Meyers OTW, 2 Piper J-3C.

Clear Ridge Aviation, Inc., 72nd and Crown Point Ave., Omaha, Neb. William A. Fraser, Jr. 4 Aeronca 7-ACs, 2 Aeronca TAL, 1 Aeronca A-65, 2 Pipers, 5 Stinsons.

Clearview Airport, RFD No. 8, Dallas, Tex. Mr. and Mrs. H. F. Volk, owners. 2 Interstate Cadet Trainers, 1 Fairchild PT-19A, 1 Piper Cub Trainer.

Clinch Flying Service, Municipal Airport, North Platte, Neb. John A. Clinch, owner. Taylorcraft, Cessna, Piper Cruiser, Stinson.

Clipper Air Specialties, Lambert Field, St. Louis, Mo. William C. Clippenger, owner. 1 Noorduyn Norseman.

Norman A. Clothier, Florence, Kansas. Owner. Equipment omitted in report.

Clovie Airport, Clovis, N. Mex. R. H. Vandiver and W. L. Goedeke, partners. 1 Cessna T-50, 1 Luscombe 8-A, 1 Vultee BT-13, 1 Piper.

Coast to Coast Airlines, Inc., 430 Kress Bldg., Houston, Tex. Henry G. Evans, secretary-treasurer. 3 DC-3s, 1 DC-2.

Coastal Aviation, Inc., P. O. Box 140, Elizabeth City, N. J. J. W. Seymore, vice president. 2 Piper Cubs, 1 Piper Cruiser, 1 Stinson.

Cody Aero Service, Cody, Wyoming. Carl L. Carlson, owner. Equipment omitted.

Coe & Son Aviation Corp., Tarkio, Mo. Robert J. Graf, president. Cessna 140, Piper Super Cruiser.

Coffeyville Airway Co., Box 274, Coffeyville, Kansas. John H. Lightstone, partner. Cessna T-50, Cessna 140, Stinson 150.

Harry Coffie Flying Service, Estherville, Iowa. Owner. 2 Aeronca 65-Cs.

Columbia Aircraft Services, Municipal Airport, Bloomsburg, Pa. T. N. Wood, owner. 1 Fairchild, 1 Beechcraft, 3 Piper J-3s.

Columbia Flying Service, Columbia, Mo. E. W. Woods and Frances L. Woods, partners. 1 Cessna, 1 Vultee, 1 Fairchild, 1 Aeronca Chief.

Comet Air Lines, Inc., Port Columbus, Ohio. William J. Meyer, president. 1 Noorduyn Norseman.

Conn-Air, Inc., R. F. D. No. 2, Danbury, Conn. R. E. Conley, president. Stinson, Ercoupe.

Connecticut Valley Seaplane Base, 1640 Palisado Ave., Windsor Locks, Conn. Edward A. Pease, owner. 1 Taylorcraft BCS-12.

Consolidated Air Transit, Inc., 238 Munn Ave., East Orange, N. J. William H. Burr, Jr., president. 2 DC-3s.

Consolidated School of Aviation, Inc., Cape Girardeau, Mo. William J. Kles, president. Luscombe, Bellanca, Piper Cub.

Consumers Air Freight Corp., 29½ Main St., Champaign, Ill. Frederick E. Price, president. 1 DC-3, 1 Stinson AT-19.

Continental Divide Aviation Co., Municipal Airport, Rawlins, Wyo. J. M. Sullivan and W. T. Cove, partners. 1 Stinson Voyager 150.

Continental Sky-Van, Inc., Oakland Airport, Oakland, Calif. C. C. Graham, operations manager. Equipment not known.

Cooke-Kelley, RFD No. 3, Cleburne, Texas. Carroll C. Cooke and Lindsay Kelley, partners. 1 Piper Cub J-3, 1 Piper Cub J-5, 1 Aeronca 7A, 1 Aeronca TC, 1 Ryan.

Corinth Flying Service, Corinth, Miss. C. H. Brady, president-general manager. 3 Aeronca 7-ACs, 1 Vultee BT-13A.

Corsicana School of Aeronautics, Municipal Airport, Corsicana, Tex. James P. Roberts, president. 2 Aeronca Champions, 1 Fairchild 24.

Cortez Flying Service, Cortez, Colo. R. N. Usher, owner. Piper Cruiser.

Ralph Cox, Jr., New York Athletic Club, 59th St., New York City. 1 DC-3, 1 DC-4.

Creswell Air Service, Inc., Creswell Airport. Creswell, N. C. Delmar C. Owens, operator. 1 Piper Cub.

Cribbitt Flying Service, Wahoo, Nebraska. R. F. Cribbitt, owner. 1 Luscombe 8A.

Critchfield Air Service, Box 482, Fayette, Missouri. Kenneth D. Critchfield, owner. 1 Aeronca 7AC.

Cromwell Flying Service, River Road, Box 209, Cromwell, Conn. Donald W. Kirschmann and Edward F. Myjack, partners. 1 Luscombe 8-C.

Ray E. Cummings, Basin, Wyo. Owner. 1 Piper J-3C.

Currens & Medsher Flying Service, Jensen Commercial Airport, So. Coffeyville, Okla.

Paul W. Currens and Lloyd T. Medsker, partners. 1 Aeronca 7-AC, 1 Porterfield, 1 Funk F2B.

**Cutter-Carr Flying Service**, West Mesa Airport, Albuquerque, N. Mex. William P. Cutter and Clark M. Carr, partners. 3 Cessnas, 1 Fairchild F-45.

**Dakota Aviation Co.**, W. W. Howes Municipal Airport, Huron, S. Dakota. Edward G. Youngs, president. 1 Stinson, 1 Bellanca, 2 Aeronca 7AC.

**Dallas Aircraft Sales, Inc.**, 3416 Love Field Drive, Dallas 9, Texas. G. E. Penn, president. 1 Beechcraft, 1 Howard 15-P, 1 Cessna T-50.

**Daniels Flying Service**, Holdredge, Neb. Harry E. Daniels, owner. 1 Piper PA-12, 1 Piper J-3.

**Dansville Flying Service**, Batavia, N. Y. L. E. Pickard, president-treasurer. 1 Stinson SR-5A, 1 Stinson 10-A.

**Dartmouth Airways, Inc.**, 7 Allen St., Hanover, N. H. Robert J. Putnam, president. 4 Cessna T-50s, 2 Piper Cubs, 1 Vultee BT-13, 1 Fairchild PT-19.

**Davidson Air Service**, Vermillion, South Dakota. Harold Davidson, owner. 2 Aeronca 7-ACs, 1 Piper J-3.

**Delta Aircraft Co.**, Brownsville, Texas. Doro Besteiro, Odo Raymond Walker, and Howard F. Moore, partners. Cessna UC-78, Piper Cub J-3, Piper Cub J-5, Luscombe 8 A, Fairchild PT-19, Taylorcraft BC-12.

**Des Moines Flying Service**, Box 712, Des Moines, Iowa. Howard V. Gregory and Edna L. Gregory, partners. Piper PA-12.

**Dickerhoof Flying Service**, Municipal Airport, Chanute, Kansas. O. E. Dickerhoof and Fred W. Montague, Jr., partners. Aeronca.

**W. J. Dillner Transfer Co.**, 601 Melwood St., Pittsburgh, Pa. Albert G. Dillner, president. 1 Noorduyt Norseman.

**Division St. Airport**, Route 14, Portland 6, Oregon. Claude W. Odell and C. R. Hanna, partners. 1 Fairchild 24.

**Dobbs Ferry Seaplane Base**, Dobbs Ferry, New York. Claude Dilworth, owner. Aeronca, Piper Cub.

**Robert Donner**, 459 National Bank Bldg., Colorado Springs, Colo. Owner. 1 North American SNJ-4, 1 Beechcraft 17, 1 Fairchild 24-K, 1 Piper Cub.

**Douglas Flying Service**, Box 173, Douglas, Wyo. R. O. Sherman and Robert W. Morrison, partners. 2 Aeronca 7-AC.

**Down East Airlines**, Airport, Augusta, Maine. W. L. Shearer, owner. Fairchild, Luscombe.

**Dracula Flying Service**, Grand Junction, Colo. Edward E. and Fern E. Dracula, partners. Equipment omitted in report.

**Duluth Airlines, Inc.**, Spalding Hotel, Duluth, Minn. Jack Cavanaugh, president. 1 Cessna. Leases 2 Lockheed Lodestars from War Assets.

**Dyas Flying Service**, Municipal Airport, Colby, Kansas. Duane E. Dyas, owner. 1 Taylorcraft.

**Eagle Air Service**, Adams Field, Little Rock, Ark. Lee E. McDowell, and Edward I. Hines, partners. 1 Piper J-3, 3 Taylorcraft BC-12-D, 1 Stearman PT-17, 1 Cessna UC-78. Eagle Air Transport, 409 Union National Bank Bldg., Houston, Texas. John H. Eagle, owner. 1 DC-3.

**Eagle Airways, Inc.**, Box 61, Douglas, Wyoming. E. J. Adair, president. 1 Cessna, 2 Taylorcraft BC-12-D.

**East Coast Aviation Corp.**, Hillsgrove, Rhode Island. John T. Griffin, president-treasurer. 1 C-47, 2 Cessna UC-78s, 1 Stinson AT-19, 1 Stinson 150, 10 Aeroncas.

**East Hampton Airport**, East Hampton, L. I. N. Y. Charlotte Miles, owner. 3 Piper Cub J-3, 1 Fairchild, 1 Ercoupe.

**Eastwind Airways, Inc.**, 119 Exchange St., Portland, Me. James L. Taylor, president. 1 Norseman.

**Echelon Aeronautical Service**, Box 104, Haddonfield, N. J. Rogers M. Smith, president. Equipment omitted in report.

**Edgeley Flying Service**, Edgeley, N. D. C. E. Klipp, partner. 1 Aeronca 7-AC, 1 Aeronca 058B.

**Edgington Air Service**, Concordia, Kansas. Leo F. Edgington, owner. 3 Aeronca 7ACs,

1 Aeronca Chief.

**Elk Point Flying Service**, Elk Point, So. Dak. J. H. Crowder, owner. Single-engine plane.

**Emery Flying Service**, 1201 W. 4th St., Cameron, Mo. Harold E. Emery, owner. Equipment omitted in report.

**Emmert Airport**, Eldora, Iowa. Leslie Turner Emmert, president. Stinson.

**Emporia Flying Service**, Emporia, Kansas. Lewis L. Fankhauser, owner. 3 Aeronca 7-ACs, 1 Ercoupe 415-C.

**J. J. Enger**, 324 No. 1st St., Minneapolis, Minn. Owner. 15 Beechcraft C-18S, 6 Beechcraft.

**Eno Flying Service**, Eno Airport, Fort Dodge, Iowa. Ellis Eugene Eno, owner. 3 Aeronca Champions 7-AC, 1 Cessna 140, 1 Stinson 150, 1 Stearman A-75.

**Erhart Flying Service**, Larned, Kansas. Delbert F. Erhart, owner. 2 Aeronca 7-ACs, 1 Taylorcraft.

**Erie County Flying Service**, Erie County Airport, Farvlien, Pa. M. E. Kudlak, manager. 1 Stinson Voyager.

**Estes Scenic Airways**, Box 726, Estes Park, Colo. V. C. Rasmussen, owner. Equipment omitted in report.

**Evanston Flying Service**, City Airport, Evanston, Wyo. Tom Painter, president. 2 Piper J-3, 1 Curtiss 15-D.

**Evergreen Flying Service**, Luggs Airport, Vancouver, Wash. Waldo S. Olson and Elvin V. Puckett, partners.

**Executive Airlines, Inc.**, 614 Chester-Ninth Bldg., Cleveland, Ohio. K. W. Everson, president. 2 Cessnas.

**F & S Flying Service**, Loveland, Colo. Frank V. Foster and Howard E. Stewart, partners. 2 Aeronca Champions, 1 Cessna T-50.

**Fairmont Flying Service**, Fairmont Airport, Fairmont, Minn. Larry Daigneau, owner. 2 two-place, 1 three-place planes.

**Farly's Air Service**, New Baltimore, N. Y. John Bartell, owner. 1 Cessna UC-78, 1 AT-6, 1 Vultee BT-13.

**Farmington Aviation Corp.**, Box 286, Farmington, Mo. H. H. Peterson, president. 1 Piper J-3, 1 Piper J-5, 2 Taylorcraft, 1 Ercoupe, 3 Aeroncas, 1 Fairchild.

**Faulkner-Ayres, Inc.**, Box 38, Paris, Texas. Jess D. Faulkner, president. 7 Piper Cub J-3s, 1 Fairchild PT-1, 1 Piper Cub Cruiser, 1 Vultee.

**Fayetteville Flying Service**, Fayetteville, Ark. Raymond J. Ellis, partner. 2 Cessna T-50, 1 Stinson, 1 Piper PA-12, 11 Piper J-3s.

**Fechter-Brower Air Service**, Sutherland, Iowa. Lambert L. Fechter and Dale M. Brower, partners. 2 Taylorcrafts.

**Ferns Flying Service**, Concord Airport, Concord, N. H. Franklin T. Ferns and John W. Ferns, partners. 1 Cessna 140, 2 Cessna 120, 1 Taylorcraft.

**Ferrari, Louis**, 473 Stuart St., Boston 16, Mass. Owner. 1 Fairchild PT-19.

**Fessenden Flying Service**, Fessenden, North Dakota. Harry Hayashi, Jr., and Fred J. Mohr, partners. 1 Piper Cub Cruiser.

**Festus Flying Service, Inc.**, 215 Main St., Festus, Mo. T. C. Brickey, secretary-treasurer. Equipment omitted in report.

**Finley's Flying Service**, Municipal Airport, Joplin, Mo. James E. and Robert E. Finley, partners. 1 Bellanca Cruisair, 3 Cessna 140s.

**Flamingo Air Service, Inc.**, Avon Park, Florida. 6 C-47s.

**Fleetwood Airways International, Inc.**, International Airport, Brownsville, Tex. A. G. Williams, III, president. 2 DC-3s, 2 Noorduyt Norsemans, 1 AT-6, 1 Fairchild AT-21.

**Flite-Ways, Inc.**, Municipal Airport, Blue Earth, Minn. William More, president. Ercoupe.

**Florida Air Transport**, 117 N. E. 103rd St., Miami, Fla. L. L. Brannan, owner. 1 DC-3.

**Forest Flying Service**, Municipal Airport, Hibbing, Minn. John and Angelo Paolo, partners. 1 Taylorcraft, 1 Luscombe 8A.

**Fort Sumner Flying Service**, Fort Sumner, New Mexico. L. S. Goedeke, owner. 1 Piper Cub J-3, 1 Vultee.

**Fox Airport**, Raymondville, Texas. German

Fox, owner. Fairchild-24, Piper J-3C.

**Fremont Air Service**, P. O. Box 91, Canon City, Colo. Murray Black and Walter Wood, partners. Piper J-5.

**Frontier Airmotive, Inc.**, International Airport, Brownsville, Tex. A. G. Williams III, president. 1 Fairchild PT-19, 1 Cessna T-50.

**Fulkerson Aviation Service**, Gillette, Wyo. James T. Fulkerson, owner. 2 Aeronca 7-AC.

**Fuller Flying Service**, Fuller Airport, Milford, Iowa. Stanley G. Fuller, owner. 1 Cessna, 1 Stinson.

**Fulton Flying Service**, Box 354, Fulton, Mo. Noel Cessna, Jr., owner. Equipment omitted in report.

**Jack Funk**, 518 W. Broadway, Sedalia, Mo. Owner. 3 Piper J-3s, 7 Piper J-5s, 7 Taylorcraft, 8 Cessnas 140, 6 Aeroncas.

**Garden City Aero**, San Jose, Calif. Howard R. White and Fred W. Sautter, partners. 3 Aeroncas.

**General Aircraft Co., Inc.**, Box 1006, Boise, Idaho. Jack W. Medlin, president. 1 Waco, 1 Travelair, 1 Bellanca, 2 Cessna 140.

**General Aircraft Service Co.**, Box 235, Gooding, Idaho. Harry F. Jackson, manager. 1 Cessna 140, 2 Piper Cruisers, 1 Piper J-3, 1 Porterfield.

**General Airplane Service**, Box 250, Sheridan, Wyo. N. P. Yentzer, Jr. and R. V. B. Yentzer, partners. Piper J-3, Piper PA-12. Cessna 140.

**General Air Service, Inc.**, Tri-cities Airport. Endicott, N. Y. J. P. McLaughlin, president. 1 Harlow PJC-2, 1 Stinson 108, 1 Aeronca 7-AC.

**Ray A. Gervais**, Tofta, Minn. Owner. 1 Piper Cub, 1 Curtiss.

**G. I. Mutual Aviation Co.**, 925 Market St., Wilmington, Del. Donald L. Korn, president. DC-3s.

**Gillette Air Park**, Gillette, Wyo. Dr. J. C. McHenry, Larry Butler, Norris Taylor, partners. 1 Cessna 140, 1 Aeronca Chief, 1 Piper Cub.

**Gillespie Airways**, Berry Field, Nashville, Tenn. J. D. Gillespie, owner. Cessnas T-50s (number not given).

**Hugh Gilmore**, Box 2102, Pensacola, Fla. Owner. 1 Waco.

**Globair, Inc.**, 401 Simms Bldg., Dayton, Ohio. William A. Simms, president. 2 Cessna T-50s.

**Global Airways, Inc.**, 615 Landis Ave., Vine-land, N. J. Joseph Bolnick, president-treasurer. 1 DC-3.

**Globe Freight Airline, Inc.**, 739 Main St., Hartford, Conn. James N. Laneri, president. 1 DC-3.

**Gopher Aviation, Inc.**, Rochester Airport, Rochester, Minn. E. H. Croft, officer. 1 Cessna, 2 Stinsons, 1 Piper Cub Cruiser, 1 Luscombe, 1 Taylorcraft.

**Gorss Flying Service**, Montgomery Airport, Montgomery, N. Y. Gerald P. and Donald W. Gorss, and Henry and Charles Alberts-mier, partners. 2 Cessna T-50s, 2 Noorduyt Norsemans.

**Gothenberg Flying Service**, Municipal Airport, Gothenberg, Neb. C. H. Fiese, owner. 2 Taylorcrafts.

**August Graf**, Box 392, New Canaan, Conn. Owner. 1 Piper Cub J-3.

**Graham Bell Aviation Service, Inc.**, Box 768, Albuquerque, N. M. M. F. Downer, owner. 6 Piper J-3C.

**Grandview Flying Service**, Kansas City Grandview Airport, Grandview, Mo. Seymour N. Salvay, owner. Aeronca 7-AC, Taylorcraft.

**Grazier Flying Service**, Box 934, Livingston, Montana. Glen G. Grazier, owner. Equipment omitted.

**Great Circle Airways, Inc.**, 320 Balter Bldg., New Orleans, La. R. C. Mahay, president. 2 Cessna UC-78s.

**Jack Gregory**, Dimmitt, Texas. Owner. 1 light airplane.

**Greylock Airways, Inc.**, 52 Glenwood Ave., Pittsfield, Mass. John A. Heaton, president. 3 Taylorcraft BC-12D.

**Grim Flying Service, Inc.**, R. F. D. No. 4, Staunton Municipal Airport, Staunton,

Va. H. P. Grim, Jr., president. 6 single-engine planes.

**Theodore J. Grover**, 3012 S. Logan St., Englewood, Colo. Owner. 1 Cessna T-50.

**Gulfair (Gulf Air Lines)**, 1205 Holman Ave., Houston, Tex. Owned by Cravens, Dargan & Co. 2 Noorduyn Norsemans.

**Willis B. Hall**, Straton, Nebraska. Owner. Equipment omitted.

**Halsmer Flying Service**, Halsmer Airport, Lafayette, Ind. Major Joseph L. Halsmer, owner. 1 Aeronca Chief, 1 Piper Crusler, 1 Lambert Monocoupe, 1 NA AT-6, 1 Cessna UC-78.

**Hamlen Flying Service**, P. O. Box 53, East Stroudsburg, Pa. Harold T. Hamlen, owner. 1 Ercoupe, 1 Piper J-5A.

**Hansen Flying Service**, Torrington Municipal Field, Torrington, Wyo. Verley Hansen, owner. Equipment omitted in report.

**John D. Hanson**, Warroad, Minn. Owner. 1 Cessna T-50, 1 Piper Cub.

**Haps Flying Service**, Box 117, Hillsboro, Oregon. H. R. Oslund and J. W. Inman, partners. Culver, Taylorcraft, Ercoupe.

**Harbison Air Service**, Municipal Airport, Oakland, Calif. Robert L. Harbison, owner. 1 Beech 18.

**Hardy Aviation, Inc.**, Box 408, Waynesboro, Pa. Malcolm L. Hardy, president. Ercoupe.

**Malcolm L. Hardy**, R. D., Waynesboro, Pa. Owner. Cessna UC-78, Beechcraft 18-A.

**Harrington Air Service, Inc.**, Mansfield, Ohio. J. R. Harrington, president. 1 Beechcraft, 1 Cessna UC-78, 1 Stinson 10A, 5 Luscombe 8As, 4 Ercoupes, 1 Seabee.

**Harris Flying Service**, Box 365, Municipal Airport, Versailles, Mo. Charles Harris, Jr., owner. 1 Aeronca T-AC.

**Harrisburg Flying Service**, Harrisburg, Arkansas. Buell H. Crider and Ben F. Powel, partners. 2 Aeronca T-7AC, 1 Stinson Voyager, 1 Aeronca Chief, 1 Piper Cub Trainer.

**Harris & Ryun Flying Service**, Box 85, Lovell, Wyoming. Keith S. Harris and L. C. Ryun, partners. 1 Vultee, 1 Waco, 1 Piper Cub J-3, 1 Ercoupe.

**Harte Flying Service**, Hartlee Field, Denton, Texas. George L. Harte, owner. 2 Piper Cub J-3, 1 Waco, 1 Cessna UC-78, 1 Fairchild PT-19.

**Harte Flying Service**, Hangar 2, Municipal Airport, Wichita, Kansas. George L. Harte, owner. 1 Cessna, 1 Piper Crusler, 1 Beechcraft 35.

**Hartman Flying Service**, Municipal Airport, Burlington, Iowa. A. J. Hartman, owner. Equipment omitted.

**Hastings Sky Ranch**, Hastings, Nebraska. John H. Hueske, president. Equipment omitted in report.

**Haven Flying Service**, County Airport, Schenectady, N. Y. George C. Haven, owner. Stinson 150.

**Hawaiian Air Transport Service, Ltd.**, 2862 Nuuanu Ave., Honolulu, T. H. Lloyd B. Osborne, president. 2 Beechcraft D-18-S.

**Hawthorne Flying Service**, Hawthorne Field, Orangeburg, S. C. Beverly E. Howard, president. 6 Cessnas, 3 Stinsons, 8 Piper Cruslers, 2 Wacos, 2 Beches.

**Hazel Flying Service**, Artesia, N. M. A. H. Hazel, owner. 3 Piper J-3, 1 Piper J-5, 1 Piper Super Crusler.

**Hebron Airways**, Hebron, Nebraska. E. F. Kilmer, owner. 2 Luscombe 8As.

**W. D. Heckman**, Pine Valley Airport, Colorado Springs, Colo. Warren Dale Heckman, owner. Equipment omitted in report.

**Hedden Flying Service**, Norton, Kansas. Verlie W. Hedden, owner. 1 Aeronca Champ, 1 Aeronca Chief, 2 Waco.

**Heidelbauer Flying Service**, Municipal Airport, Sac City, Iowa. Fred Heidelbauer, owner. 2 Piper J-3s.

**Hermann Flying Service**, Bowles Airport, Agawam, Mass. Harry J. Hermann, owner. Equipment omitted.

**Hettinger Air Service**, Hettinger, N. D. Thomas B. Stevens, C. L. Melby, partners. 1 Vultee BT-13A, 1 Aeronca, 2 Piper J-5s.

**Hlawatha Airways, Inc.**, 163 Center St., Winona, Minn. Walter C. Kelly, president. 1 C-47 (converted).

**Ashby G. Hibbs**, Salda Airport, Salda, Colo. Owner. Taylorcraft, Piper Cub.

**Hickman Aviation**, Stafford, Kansas. Orville H. Hickman, owner. 2 Taylorcraft, 1 Vultee, 1 Piper J-3.

**J. D. Higgins**, Box 873, Cisco, Texas. Operator. 3 Vultee BT-13As, 1 Stearman, 1 Piper J-3.

**Hill Air Service**, 711 E. Second St., Alice, Texas. James P. Hill, president. 1 Cessna.

**Hilton Flying Service**, Hilton Airport, Hilton, N. Y. Harold L. Silloway, E. F. Rusho, partners. 2 Piper J-3s.

**Hinck Flying Service, Inc.**, Minneapolis, Minn. Clarence W. Hinck, president. 3 passenger and cargo planes.

**Hitt Flying Service, Inc.**, Tri-Cities Airport, Endicott, N. Y. Raymond H. Hitt, president-treasurer. 2 Ercoupes, 2 Taylorcraft, 1 Fairchild 24, 1 Vultee BT-13A.

**Hobbs Me-Tex Airport**, Hobbs, N. Mex. B. F. Hines, owner. 1 Cessna T-50, 8 Pipers, 1 Culver, 1 Vultee BT-13.

**Edw. P. Honroth**, Northfield, Ohio. Edward P. Honroth, owner. Equipment omitted.

**Hoosier Air Freight**, 103 Park Ave., New York City. J. E. Rogers, president. 8 DC-3s, 2 AT-6s, 1 Waco.

**V. D. Howe**, Box 111, Brownwood, Texas. Owner. 1 Fairchild.

**Hoyt's Flying Service**, Philip, So. Dakota. M. D. Hoyt, owner. 3 Aeroncas, 1 Piper J-3.

**Hubbard Aviation Co.**, Watertown, So. Dakota. Ralph Hubbard, president. 1 Stinson 150, 1 Piper Crusler, 1 Cessna 140.

**Hubbards Flying Service**, Valley Airport, Sayre, Pa. Everett A. Hubbard, owner. 2 Piper J-3s.

**H. S. Hubbell, Jr.**, Conway Valley Airport, Conway, N. H. H. S. Hubbell, Jr. owner. 2 Cessna UC-78s.

**Hudson Valley Aviation Center**, 140 Front St., Newburgh, N. Y. Edward M. Rockwell, owner. 1 Piper J-3.

**Hunter Flying Service, Inc.**, Box 183, Cedar Rapids, Iowa. Dan P. Hunter, Sr., president. Cessna, Vultee BT-13A, Fairchild 24, Aeronca Chief.

**Huntoon Airport Co.**, R. 8, Topeka, Kansas. Edgar L. Harrington and Robert I. Shidelen, partners. Equipment omitted in report.

**Illini Airport**, Box 268, Urbana, Ill. Harold Hays, E. J. McElwee, partners. 7 Piper J-3s.

**Independence Flying Service**, R. D. Mize Road, Independence, Mo. George H. Morris and Riley C. O'Neill, partners. 1 Taylorcraft, 1 Fairchild.

**Earl H. Ingalls**, Maine, New York. Owner. 1 Piper J-3.

**Instrument Freight Institute**, 730 E. 4th St., Reno, Nev. Carl F. Johnson, owner. Spartan Executive, Vultee BT-13A, North American AT-6, 3 Rearwins.

**Intercontinental Air Transport Co.**, Miami International Airport, Miami, Fla. Walter A. Stonnell, president. 3 DC-3s, 2 Lockheed Lodestars.

**International Air Freight, Inc.**, Box 2068, West Palm Beach, Fla. Alexis Obolensky, president-treasurer. DC-3s.

**Iowa Airplane Co., Inc.**, Municipal Airport, Des Moines, Ia. F. C. Anderson, president-treasurer. 8 2-place cabin, 2 4-place cabin, 1 5-place open, 1 2-place open planes.

**Island Air Ferries**, McArthur Field, Bohemia, L. I., N. Y. Murray Hawley, president. 2 DC-3s, 1 Vultee BT-13A.

**James Flying Service**, Box 1668, Prescott, Arizona. Cecil W. James, owner. 1 Cessna 140, 1 Waco.

**Janssen Skytel & Flying Service**, McPherson, Kansas. Wm. H. Janssen, owner. 4 Taylorcraft BC-12-D.

**Jenkins Aircraft Sales & Service**, Municipal Airport, Lubbock, Texas. J. D. Jenkins and James J. Vickers, partners. 1 Cessna Airmaster, 2 Cessna 140s, 3 Cessna 120s, 1 Stearman PT-27, 1 Piper J-3, 1 Taylorcraft.

**Johnson Flying Service, Inc.**, P. O. 1382, Missoula, Montana. Robert R. Johnson, president. 3 tri-motor Fords, Travelair, Beech, 2 Fairchild 24s.

**Jones Airport**, Rt. 2, Chillicothe, Ohio. Stanley A. Jones. 3 Luscombes 8-As, 1 Cessna 140, 1 Taylorcraft DO-65.

**Jones Air Service**, 937 Bluff Rd., Montebello, Calif. J. H. Jones, owner. 1 Boeing A-75.

**Ben Jones**, 1132 S. W. Second Ave., Miami, Florida. Owner. 2 Douglas C-47s.

**Ralph M. Jones**, Almonesson Airport, Almonesson, N. J. Owner. 4 Piper J-3s, 1 Fairchild.

**Jonesboro Flying Service, Inc.**, Jonesboro, Ark. W. H. Arnold, president. 1 Stinson 150, 1 Cessna 140, 1 Luscombe.

**Junior College Flying Service**, Box 72, McCook, Nebraska. Benjamin Frank, manager. 1 Taylorcraft.

**Kampeska Air Service, Inc.**, Watertown, So. Dak. Ralph H. Frothinger, president. 4 Luscombe 8-As, 1 Ercoupe, 1 Stinson AT-19.

**Kansas Air Activities**, Municipal Airport, Russell, Kansas. Milton Reinhardt, president. Cessna 140.

**Kansas City Southern Skyways, Inc.**, 114 W. 11th St., Kansas City, Mo. W. N. Deramus, president. 5 Noorduyn Norsemans, 1 DC-3.

**F. Kaufmann Flying Service**, Sylvan Beach Airport, Kirkwood, Mo. Frank Kaufmann, president. Equipment omitted in report.

**Lewis R. Keith**, Russell, Kansas. Owner. 1 Beechcraft L-4, 1 Cessna.

**Ken-Mar Airport**, 4502 E. 13th St., Wichita, Kansas. E. W. Yockey, E. E. Isaacs, partners. 12 Piper J-3s, 1 Piper PA-12, 2 Fairchild PT-19, 1 Waco, 1 Taylorcraft.

**Kerr-McGee Skyways, Inc.**, Kerr-McGee Bldg., Oklahoma City, Okla. Robert S. Kerr, president. 1 DC-3.

**Key Brothers Flying Service, Inc.**, Box 1465, Meridian, Miss. Fred M. Key, president. Equipment omitted.

**J. B. Kidd Flying Service**, 324 E. Pershing, Springfield, Mo. J. B. Kidd, owner. Luscombe.

**Kindred Airport**, Kindred, N. D. Nate Thompson, manager. 1 Aeronca, 1 Taylorcraft, 2 Stinson, 1 Piper Super Crusler.

**Kingsair Transportation, Inc.**, 137 So. 7th St., Minneapolis, Minn. D. J. King, president. 1 Norseman, 3 Cessna UC-78s.

**Kiowa Flying Service**, Kiowa, Kansas. J. Robert Schooley, owner. 1 Taylorcraft, 1 Piper J-3.

**Kluthe Flying Service**, Elgin, Nebraska. Joseph G. Kluthe, owner. Piper J-3C.

**Knipp Aviation Industries**, Box 2586, Baltimore, Md. Frank H. and Howard F. Knipp, partners. Equipment omitted.

**Knoll-Faser Flying Service**, Box 592, Kearney, Neb. William J. Knoll, Jr., owner. Cessna 140.

**Laconia Airways, Inc.**, Box 282, Laconia, N. H. A. Donald Vaughan, president. 1 Stinson, 1 Cessna, 1 Commonwealth, 2 Piper J-3s.

**Lahontan Air Service**, R. R. 1, Fallon, Nev. Joseph E. York, owner. 2-place land monoplane.

**Lakehead Airways**, Williamson-Johnson Airport, Duluth, Minn. N. S. Niemi, owner. 1 Waco, 3 Taylorcraft.

**Lake of the Woods Flying Service**, Baudette, Minn. Ervon E. Caron and George R. Lore, partners. 1 Piper J-3, 1 Piper J-5.

**Lakeland Skyways**, Wold Chamberlain Field, Minneapolis, Minn. Niels H. Sorensen and Edward A. Sieber, partners. 1 Cessna UC-78.

**Lakewood Air Service, Inc.**, Cedar Bridge Rd., Lakewood, N. J. W. C. Applegate, Jr., president. 2 Piper J-3s.

**Lamesa Flying Service**, Lamesa Flying Field, Lamesa, Texas. Edwin H. Darrell, owner. 1 Piper J-3. Leases 1 Vultee B-13.

**Lang Flying Service**, Box 3, Municipal Airport, Omaha, Neb. Carl B. Lang, owner. Equipment omitted in report.

**La Plata Flying Service**, Durango, Colo. E. D. Arndt and Charles Overfield, partners. 1 Cessna 140, 1 Cessna 120.

**Leamon Flying Service**, 1504 E. 50th St., Kansas City, Mo. G. F. Leamon, owner. 1 Fairchild.

**Leighner Aircraft**, Municipal Airport, Hutchinson, Kansas. Robert W. Leighner, partner. Equipment omitted in report.



**Leithold Seaplane Service**, Ely, Minn. W. F. Leithold, owner. 4 Norsemans, 3 Fairchilds, 2 Stinsons, 1 Piper Cub (all pontoon-equipped).

**W. G. Leyshon**, 12 Kinship Rd., Dundalk, Md. Owner. Equipment omitted.

**Lincoln Air Lines**, 3130 Love Field Drive, Dallas, Texas. J. V. Lincoln, owner. Cessna T-50.

**John Linder**, 402 N. 8th St., Missouri Valley, Iowa. Owner. 1 Piper J-3.

**B. Litchfield Inc.**, Marthas Vineyard Airport, Vineyard Haven, Mass. Burnham Litchfield, president. 1 Aeronca Champion.

**Littlefork Aviation Co.**, Littlefork, Minn. V. J. Mannila, H. S. Bradburn, and R. D. Hanover, partners. 2 Aeronca 7 AC.

**Lochers Flying Service**, 416 S. Minnesota St., New Ulm, Minn. Ray A. Locher, operator. 2 light planes.

**Lockhart Flying Service**, P. O. Box 724, Lockhart, Texas. L. E. Tolbirt, Jr., owner. Aeronca Champion.

**Lone Star Air Cargo Lines**, 3110 Love Field Dr., Love Field, Dallas, Tex. L. Walker Boggs, president. 3 DC-3s, 1 Vultee BT-13.

**Longmont Flying Service, Inc.**, Rt. 3, Longmont, Colo. Owen Paul Kugel, president. 1 Stinson 150, 1 Piper PA-12, 1 Cessna 140.

**Longs Flying Service**, Commercial Airport, Hannibal, Mo. E. C. Long, owner. 1 Aeronca, 1 Cessna UC-78.

**Lord-Jackson Flying Service**, Jackson Airport, Cypress, Texas. French H. Jackson, owner. 2 Piper J-3s, 1 Fairchild, 1 North American AT-6.

**Los Fresnos Flying Service**, Box W, Los Fresnos, Texas. Harold Pugh, Jr., owner. 1 Piper J-3.

**Porter E. Loving**, Box 768, Wellington, Texas. Owner. 1 Taylorcraft.

**Lowe Aviation Co., Inc.**, Herbert Smart Airport, Macon, Ga. J. T. Lowe, president. 2 Cessna UC-78s, 1 Vultee BT-13, 2 Taylorcraft, 1 Skyraider 185.

**Bruce Lund Aircraft Sales & Service**, Durango, Colo. Bruce Lund, owner. Luscombe 8A.

**Lynn & Haner Flying Service**, Alice, Texas. J. W. Lynn and G. W. Haner, Jr., partners. 4 Taylorcraft BC-12-D, 1 Fairchild.

**Lyons Aviation Co., Inc.**, Lyons, Kansas. W. D. Smith, president. 2 Aeronca champions, 1 Luscombe, 1 Piper J-5.

**Lysdale Flying Service**, Camden Station, Minn. Jack P. and Bonna L. Lysdale, partners. 1 Cessna T-50, 1 Waco.

**McCreery Aviation Corp.**, Central Valley Airport, Mercedes, Texas. J. F. McCreery, owner. 2 Taylorcraft, 1 Piper J-3.

**McFarland Flying Service**, Box 1587, Springfield, Mo. E. H. McFarland, owner. Equipment not listed in report.

**McFerrin Air Express Inc.**, Box 12, Lambert Field, St. Louis, Mo. Jessie W. McFerrin, president. 1 DC-3, 1 Lockheed Lodestar.

**J. K. McKenzie**, Logan Airport, East Boston, Mass. 1 Cessna T-50.

**McVillie Flying Service**, Mechanicsville, Iowa. Lewis E. Hudachek, owner. 1 Taylorcraft, 1 Vultee BT-13, 1 Cessna UC-78.

**Macklin Flying Service**, Oshkosh, Nebraska. Seddie Macklin, owner. Cessna 140.

**Madison Flying Service**, Madison, Minn. Bernard N. Frye, owner. 4 light planes.

**Mahon's Boot Hill Flying Service**, Dodge City, Kansas. Roy O. Mahon, owner. 1 Piper J-3, 1 Piper Cub, 1 Ercoupe, 1 Stearman, 1 Cessna UC-78, 1 Vultee BT-13A.

**Maine Air Cargo Express**, Rockland Municipal Airport, Owls Head, Maine. Thomas J. O'Dwyer, president. 1 DC-3, 1 Norseman.

**Manchester Airways, Inc.**, Box 891, Hot Springs, S. D. Stanley A. Manchester, president. Piper J-5.

**Manhattan Flying Service**, Box 493, Manhattan, Kansas. Willard T. Leopold and Ernest A. Lindquist, partners. 1 Cessna 140.

**Mankato Aero Service**, Mankato Airport, Mankato, Minn. Harold R. Schlesselman, owner. 1 Cessna UC-78, Bellanca Crusair.

**Mantrap Air Service**, Municipal Airport, Kansas City, Mo. C. F. Sweetman, Jr., Joe W. Cannon, and R. O. Brenner, partners. 1 Cessna UC-78, Boeing PT-17.

**Marietta Airways, Inc.**, Marietta, Ohio. J. G. Grow, President. 2 Piper J-3s, 1 Piper PA-12, 1 Ryan.

**Marlton-Medford Airport, Inc.**, Marlton, N. J. Earl Goekeler, president. 1 Piper J-3.

**Marshall Aeromotive Assoc.**, 214 N. Lafayette St., Marshall, Texas. W. L. Smith, president. Single-engine land plane.

**Marshall Flying Service**, Marshall, Minn. Donald E. Rye and G. A. Hawkins, partners. 1 Stinson.

**Marshall Flying Service**, Box 229, Marshall, Mo. Sammie Goldin, owner. Equipment omitted.

**Maryland Airlines, Inc.**, Easton, Md., Greenville K. Baker, president. 4 Cessnas, 3 Norsemans, 2 Ercoupes, 2 Aeroncas, 1 Stearman.

**Marysville Flight School**, Box 289, Chelm Field, Marysville, Calif. James W. Riney, partner. 1 Cessna 140, 1 Aeronca 7-AC, 3 Piper J-3s, 1 Fairchild.

**Massey & Ransom Flying Service**, Box 416, Fort Collins, Colo. Otis T. Massey, president. 2 Waco, 2 Piper J-3s, 2 Interstate Cadets, 7 Luscombes 8-A & 8-Es.

**Matson Navigation Co.**, 215 Market St., San Francisco, Calif. W. P. Roth, board chairman; Frazer A. Bailey, president. 2 DC-4s.

**Mattituck Airbase**, Mattituck, N. Y. J. Parker Wielham, owner-operator. 1 Aeronca Champion.

**Meacham Aviation Corp.**, Municipal Airport, Rochester, N. Y. Paul R. Meacham, president. 1 Cessna T-50, 1 Stinson 108, 1 Luscomb 8A, 1 Piper J-3.

**Mead Flying Service**, 564 Market St., San Francisco, Calif. C. N. Nelson and C. R. Mead, partners. 1 Cessna.

**Memphis Flying Service**, Box 225, Germantown, Tenn. G. H. Tambie, president. 1 Beechcraft, 2 Fairchild 24s, 1 Taylorcraft, 1 Luscombe.

**Walter S. Menge**, Box 5128, Beacon Hill Sta., San Antonio, Texas. Owner. 1 Piper J-5, 3 Piper J-3s, 1 Taylorcraft Tandem, 1 Taylorcraft, 1 Ryan, 1 Monocoupe 90-A, 1 North American AT-6.

**Mercury Charter Service**, Box 573, Kalamazoo, Mich. Jacob G. Baker, owner. 1 Beechcraft, 1 Vultee BT-13A.

**Mesaba Aviation**, Coleraine, Minn. (also North Star Airways, Marcell, Minn.) Gordon K. Newstrom, owner. 4 lightplanes, 1 Waco cabin.

**Meteor Air Transport, Inc.**, Teterboro Air Terminal, N. J. Richard M. Ludlow, president. 3 DC-3s.

**Metropolitan Airways**, 6054 S. Cicero Ave., Municipal Airport, Chicago, Ill. Samuel W. Brod, head of firm. 1 DC-3.

**Mexico Flying Service, Inc.**, Mexico, Missouri. John C. Hagan, president and manager. 1 Fairchild.

**Miami Airlines**, 100 North East 88th St., Miami, Fla. R. W. Duff and H. E. Wemmer, partners. 2 C-47s, 4 B-18s.

**Michigan Central Airlines, Inc.**, Bishop Airport, Flint, Mich. David T. Dort, president. 2 Cessna UC-78s.

**Midwest Aviation, Inc.**, Box 30, Sergeant Bluff, Iowa. W. G. Stickles, president. 2 Piper J-5, 1 Vultee BT-13-A, 1 Cessna 140.

**Midwest Flyers School of Aviation**, Lakeside Airport, East St. Louis, Mo. Omar Midyett, owner. 5 Piper J-3s, 1 Porterfield, 2 Fairchild, 2 Boeing A-75, 3 Aeronca Champions, 2 Vultee BT-13.

**Midwest Flying Service**, 140 Richards Road, Kansas City, Mo. Frank Tracy, president. Equipment omitted in report.

**Clayton Miller**, 127 Broad St., Myerstown, Pa. Owner. 3 Piper J-3, 1 Piper PA-12.

**Miller Flying Service**, Box 240 Portales, N. Mexico. James A. North, owner. 2 Piper J-3s, 1 Vultee BT-13.

**Price E. Millward**, Box 169, Jackson, Wyo. Owner. 1 Waco, 1 Porterfield.

**Missouri Airways, Inc.**, Lambert Field, St. Louis, Mo. C. V. Qually, president. 1 DC-3, 2 Cessna UC-78s.

**Mitchell Aviation**, Mitchell, South Dakota. Ed E. Anderson, owner. 3 Taylorcraft, 2 Cessna 140, 1 Aeronca Champion, 1 Aircoupe, 1 Timm.

**M. L. Flying Service**, Medicine Lodge, Kansas. C. B. Page, Jr., president-treasurer. Piper J-3.

**Moberg Seaplane Anchorage**, Bemidji, Minn. Ralph J. Moberg, owner. Type of equipment not listed.

**Modern Flying Service**, 1504 N. Sierra Bonita Ave., Hollywood, Calif. Limited partnership consisting of Laurence M. Krug, general partner. 1 DC-3.

**Mohawk Air Service**, 131 Prospect Ave., Gloversville, N. Y. Karl E. Pannaci, owner. No equipment.

**Mohawk Valley Aviation, Inc.**, Box 66, Williamstown, Mass. George A. West, president. 1 Waco.

**Mokan Aircraft Sales**, Marshall, Mo. R. H. Nicholas, owner. Equipment omitted.

**Monarch Air Lines, Inc.**, Stapleton Airfield, Denver, Col. R. M. Wilson, president. 5 C-47s. (converted).

**Monte Aviation Service**, Box 201, Montevideo, Minn. Alfred C. Larson, owner. 2 Taylorcraft, 1 Aeronca 7AC, 1 Piper J-5.

**Monte Vista Flying Service**, Monte Vista, Colo. Leroy A. Knowles and Paul Barger, partners. 1 Piper PA-12.

**Monticello Flying Service, Inc.**, Monticello, Arkansas. Anderson P. Black and Delbert C. Tindall, partners. 2 Piper J-3s, 1 Piper J-5, 1 Aeronca.

**Mor-Fresh Air Express, Inc.**, 1215 W. Broadway, Council Bluffs, Iowa. L. E. Simpson, president. 2 DC-3A.

**Morgan Flying Service, Inc.**, RFD 3, Box 349, Springfield, Mo. William Howard Morgan, president. 1 Bellanca, 1 Cessna.

**Morgan Flying Service**, Box 771, Fort Kingman Airport, Kingman, Arizona. E. K. Morgan, owner. 1 Ercoupe, 1 Taylorcraft. 1 Fairchild.

**Moritz Flying Service**, Goodland, Kansas. O. A. Moritz, owner. Single-engine land plane.

**Morristown Airport Corp.**, 28 Park Place, Morristown, N. J. Edward K. Mills, Jr., president. 1 Cessna, 1 Fairchild, 1 Ercoupe.

**George F. Mosher**, East Brookfield Airport, East Brookfield, Mass. Owner. 1 Piper J-3, 1 Piper J-5.

**Mt. Vernon Flying Service**, Box 709, Mt. Vernon, Ohio. R. B. Pribble and Russell W. Jennings, partners. 1 Stinson, 1 Cessna, 2 Luscombe 8A, 1 Aeronca Champion.

**Mount Washington Airways**, Berlin Airport, Berlin, N. H. C. A. Onofrio, owner. One twin-engine plane, 2 lightplanes.

**Mutual Airways System, Inc.**, 6147 So. Cicero Ave., Chicago, Ill. Edward G. Kreigher, president. Exclusive agent for 18 operating air carriers; companies it serves have in use 72 DC-3s and 4 DC-4s.

**National Air Cargo Corp.**, 940 S. Los Angeles St., Los Angeles, Calif. Stanley A. Jackson, president. 5 DC-3s.

**National Air Express Co.**, 369 So. Odell St., Marshall, Mo. Okie L. Rice, president. 1 DC-3.

**National Air Transport System**, Jefferson City, Mo. Jay B. Powell, president. 2 Cessna UC-78.

**National Skyway Freight Corp.** (Flying Tiger Line), 5925 W. Imperial Highway, Los Angeles. Robert W. Prescott, president. 16 DC-3s, 1 DC-4.

**Nationwide Air Transport Service**, Miami Springs, Fla. H. C. Reneker, president. 2 DC-3s.

**Nats Air Transport Service**, Municipal Airport, Oakland, Calif. W. A. Drum, president. 2 DC-3s.

**Nebraska Flying Service**, Broken Bow, Nebraska. Robert B. Hellig, owner. Equipment omitted in report.

**Nelson Flying Service**, Potter, Nebraska. Leonard E. Nelson, owner. 1 Taylorcraft, 1 Cessna 140.

**Nelson-Kelly Co.**, 2830 Pacific Highway, San Diego, Calif. Albin S. Nelson, president. 1 Waco, 1 Stinson 150.

**New Braintree Airport**, Box G, Barre, Mass. Frederick W. Hiller, owner. 2 Aeronca Champions, 1 Taylorcraft.

**New London Flying Service**, Waterford Airport, New London, Conn. Russel J. Corser, partner. Equipment omitted.

**Newsom Bros. Flying Service, Popular Bluffs, Mo. E. Z. Newsom, Jr., partner. 3 Piper J-3s.**

**Nogales International Airport, Nogales, Arizona. William Beatus, owner. 1 Waco, 2 Fairchild, 1 Taylorcraft, 1 Aeronca 7 AC. Norseman Air Transport, Inc., 78 Farmington Ave., Longmeadow, Mass. Robert G. Averill, president-treasurer. 1 DC-3.**

**North American Aviation Service, Kirksville, Mo. George J. Hansen, owner. Taylorcraft.**

**North American Skylines, Long Beach Municipal Airport, Long Beach, Calif. W. W. Dalley and E. L. Bowen, general partners. 1 DC-3.**

**Northeast Airways, Inc., Box 209, Virginia, Minn. L. F. Ness, president. 3 Luscombe. 2 Stinson, 1 Fairchild PT-19.**

**Northeastern Plane Service, Colebrook, Conn. Frederick Strampach, owner. No equipment.**

**Northern Airlines, Inc., 1331 Third Ave., Seattle, Wash. Arthur F. Johnstone, director. 3 DC-3s.**

**Northland Aviation Co., Williston, North Dakota. Harry E. Polk, president. 2 Piper J-3s, 1 Globe Swift.**

**North Michigan Service, Petoskey, Mich. Henry J. Templin, president. 3 Aeronca 7 ACs, 1 Taylorcraft, 1 Piper J-3.**

**North Pacific Airways, Troutdale Airport, Troutdale, Ore. Carl Leonard, owner. 2 Cessna UC-78s.**

**Northwest Flight Recreation Co., Holman Field, St. Paul, Minn. H. E. Schell, president. 2 Single-engine planes.**

**North Wing Skyways, Mason City, Iowa. C. M. Kirk, president. Equipment not named.**

**Nyquist Air Service, Municipal Airport, Oakland, Neb. John S. Nyquist, owner. Luscombe.**

**Oakland Aircraft Corp., Sacramento Sky Ranch, Rt. 1, Box 3305, Sacramento, Calif. John E. Schwane, president. 3 Fairchild, 3 Aeronca 7ACs, 1 Boeing.**

**Oberlin Flying Service, Oberlin, Kansas. R. A. Lohoeffer and R. N. Fraker, partners. 2 Piper J-3s.**

**Dave Odem Flying Service, Sinton, Texas. Owner. 1 Aeronca.**

**Harry W. Olson, 116 S. 7th St., Minneapolis, Minn. Harry W. Olson, owner. 2 Noorduyn Norseman, 1 Fairchild 24, 1 Stinson 10.**

**Omaha Aircraft Co., Municipal Airport, Omaha, Neb. Rudy C. Mueller, president. No equipment.**

**Omaha Standard Body Corp., 2411 W. Broadway, Council Bluffs, Iowa. Myles Standish, president. 1 Cessna UC-78, 2 Fairchild PT-19s.**

**Ong Aircraft Corp., Box 214, Kansas City, Mo. William A. Ong, president. 1 Cessna UC-78, 1 BT-13, 1 Stinson 108, 2 Interstates, 1 Piper.**

**Ozark Airways, Box 229, Marshall, Missouri. Sammie Goldin, owner. At present a sales organization only.**

**Pacific Air Lines, 7000 Hollywood Blvd., Los Angeles, Calif. E. B. Gilmore, president. 3 DC-3.**

**Pacific Air Transport, Redding, Calif. Arthur B. Ferl, partner. 1 Waco, 2 Beechcraft.**

**Pacific National Air Express, Grand Central Air Terminal, Glendale, Calif. Paul A. Bulpitt and Helen G. Bulpitt, partners. 1 C-47.**

**Pacific National Airlines, 177 Post St., San Francisco, Calif. John Howard O'Neill, president. 1 C-47.**

**Pacific Overseas Airlines Corp., Ontario, Calif. J. Edwin Jones, president. 1 DC-4, 1 Cessna, 2 North American Texas Trainers.**

**Page Airways, Municipal Airport, Rochester, N. Y. James P. Wilmot, president. 2 Cessna UC-78s, 1 Beechcraft D-18.**

**Palo Alto Airport, Inc., Municipal Airport, Palo Alto, Calif. Harry S. White, president. 6 Aeroncas, 1 Stinson 10, 2 Cessna UC-78s, 1 Beech D-18S and 1 Vultee BT-13.**

**Pan Maryland Airways, Inc., Baltimore Municipal Airport, Dundalk, Md. G. Bernard Fenwick, Jr., president-treasurer. 1 Belanca.**

**Parker Aviation Service, Wold Chamberlain Field, Minneapolis, Minn. W. M. Parker, owner. 3 two-place, 1 three-place cabin planes.**

**Reagan Parker, Box 1100, Lufkin, Texas. Owner. 1 Piper J-3.**

**Parker Air Service, Port Arthur, Texas. Glenn E. Parker, owner. Cessna T-50, Vultee, Stinson.**

**Parker Sky Camp, Box 277, Weatherford, Texas. Winfred B. Brown, operator. 1 Piper J-3, 1 Taylorcraft, 1 Vultee B-13.**

**Park Region Airways, Box 113, Park Rapids, Minn. Rodney A. Marshall, owner. 1 Interstate, 1 Cessna 140.**

**Park Region Aviation, Inc., Fergus Falls, Minn. Thomas C. VanMeter, president-treasurer. Taylorcraft.**

**Pegasus Airfreight, Inc., 206 Drexel Bldg., Philadelphia, Pa. J. Gilpin Bright, president. 3 C-47s.**

**Pemberton Flying Service, Kern County Airport, Bakersfield, Calif. Roy H. Pemberton, owner. 2 Aeronca, 1 Porterfield, 1 Taylorcraft, 2 Fairchild, 1 Swift 125.**

**Pender Aircraft Co., Pender, Nebraska. Irvn C. Exleben, owner. Equipment omitted.**

**Tom Penn Flying Service, Municipal Airport, Box 307, Perryton, Texas. Owner. 2 Aeronca Champion, 2 Porterfield, 1 Vultee.**

**Earl Penn Flying Service, Pawhuska, Okla. Owner. 2 Piper, 1 Porterfield.**

**Penn Yan Flying Club, Inc., Penn Yan, N. Y. Marvin E. Allison, president. 3 Piper J-3s, 3 Taylorcraft.**

**Perry Flying Service, R2, Perry, N. Y. George M. Austin, owner. Equipment omitted in report.**

**P-G Airtaxi System, 4108 5th Ave., Brooklyn, N. Y. Philip Gennuso, president. Single-engine land plane.**

**Philadelphia Seaplane Base, foot of Wanaker Ave., Essington, Pa. Frank Mills, partner. 1 Waco, 1 Aeronca.**

**Philadelphia Sky Port, Pier 3 So. Delaware Ave., Philadelphia, Pa. W. H. Nicolai, owner. 1 Taylorcraft, 2 Piper J-3s, 1 Luscombe.**

**Phillipsburg Flying Service, Municipal Airport, Phillipsburg, Kansas. Vinton Jones, owner. 2 Taylorcraft.**

**Piedmont Aviation, Inc., Smith Reynolds Airport, Winston-Salem, N. C. T. H. Davis, president-treasurer. 1 single-engine, five place; 2 twin-engine, five place; 3 single-engine, three place.**

**Pikes Peak Air Service, Inc., Nichols Field, Colorado Springs, Colo. Addison B. Manning, president. 1 Noorduyn Norseman, 1 Cessna 140, 4 Aeroncas, 1 Piper Cub, 1 Boeing PT-17, 1 NA AT-6.**

**Pinedale Flying Service, Pinedale, Wyo. John F. Taylor and Nolan L. Berry partners. 1 Cessna 120, 1 Cessna 140.**

**Pine Valley Airport, Colorado Springs, Colo. Robert Donner, agent. 1 Piper J-3, 1 Fairchild, 1 Beechcraft, 1 SNJ-4.**

**Pittsburgh Aviation Center, Inc., Bettis Airport, R. D. 1, Homestead, Pa. Henry A. Wise, Jr., president. Present equipment not listed.**

**Pittsburg Flying Service, Municipal Airport, Pittsburg, Kansas. Chester R. McCarty, 1 Monocoupe, 1 Waco, 1 Porterfield.**

**Plainfield Airways, Inc., Plainfield, Conn. Edward Santerre, president. 1 Cub, 1 Ercooupe.**

**Plantation Airlines, Inc., 220 Sunrise Ave., Palm Beach, Fla. Sam C. Collier, president. 2 Cessnas.**

**Plum Creek Flying School and Service, Lexington, Nebraska. Charles A. Peterman, owner. No equipment.**

**Pontius Air Service, Municipal Airport, Palo Alto, Calif. Robert J. Pontius, Jr., owner. 1 Cessna UC-78.**

**Dennis Powelson, Liberty Hotel, Miami, Fla. Dennis Powelson, owner. 5 C-47s.**

**Pryor Flying Service, 38 Mill St., Hornell, N. Y. Jack E. Pryor, owner. 1 Ercooupe, 1 Piper J-5.**

**Public Flyers, Inc., 420 Lexington Ave., New York. J. Cameron Goodwin, president. 1 C-47, 1 Beech 18.**

**Pueblo Air Service, Inc., Municipal Airport, Pueblo, Colo. L. E. Smith, president. Equipment omitted in report.**

**Purdue Aeronautics Corp., Purdue University Airport, West Lafayette, Ind. Frederick L. Hovde, president. 1 Cessna UC-78.**

**Quannah Flying Service, Commercial Airport, Quannah, Texas. H. E. Dickerson, owner. Equipment omitted.**

**Queen City Flying Service, Inc., Municipal Airport, Cincinnati, Ohio. Lawrence M. Schmidlapp, president. 1 Waco VKS-7, 1 Cessna UC-78, 2 Vultee SNV-2.**

**Racine Flying Service, Inc., Horlick-Racine Airport, Racine Wisconsin. C. E. Godske, president. 1 Cessna UC-78, 1 Stinson 108, 1 Vultee BT-13, 1 Luscombe 8A.**

**Ragsdale Flying Service, Box 370, Austin, Tex. Robert Ragsdale, owner. 4 Cessnas, 1 Taylorcraft, 1 Stinson 105, 1 Stinson 150.**

**Rainbow Airlines, Inc., 143 W. 49th St., New York City. B. Franklin Reinauer II, president. 5 DC-3s, 1 Cessna T-50.**

**Range Flying Service, Hibbing, Minn. Artillo Marinucci, president. 1 Cessna 140, 1 Fairchild PT-19, 1 Piper J-3, 1 Taylorcraft.**

**Rausch Flying School, Rt. 6, Little Ferry, N. J. William L. Rausch, owner. 1 Waco, 3 Fairchild.**

**Rawdon Brothers Flying Service, Box 1135, Wichita, 1, Kansas. Herb Rawdon, partner. Equipment omitted in report.**

**Regan Flying Service, Box 946, Shawnee, Okla. L. E. Regan-Estate, owner. 4 Piper J-3s, 2 Taylorcraft L-2, 2 Boeing, M75, 1 Cessna T-50, 2 Laister-Kauffman, 1 Fairchild M-62.**

**Remco Flying Service, Salinas Municipal Airport, Salinas, Calif. Z. J. Muzlinch, manager. 1 Stinson Reliant, 1 North American AT-6, 2 Vultee BT-13, 3 Fairchild PT-19, 4 Aeronca Champion, 1 Taylorcraft.**

**Remmert-Werner Air Service, Lambert Field, St. Louis, Mo. William F. Remmert and D. Robert Werner, partners. 1 Cessna UC-78.**

**Paul J. Rennard, Oil City, Pa. Operator. 4 Luscombe 8A, 1 Stinson Reliant.**

**Frank, Rensma, Brokenstraw Airport, Youngsville, Pa. Owner. 4 Piper J-3s, 1 Piper J-5.**

**Resort Airlines, Inc., Knollwood Air Base, Pinehurst, N. C. Lewis C. Burwell, Jr., president-treasurer. 4 DC-3s, 2 DC-4s, 3 Cessnas.**

**Resort Flying Service, Narrowsburg Airport, Narrowsburg, N. Y. Malcolm W. Dexter, president. 1 Aeronca Champion.**

**Robert E. Ricken, Jr., Rm. 1801, 15 Maiden Lane, New York City. Owner. 1 Beechcraft.**

**Riddle Airlines, Inc., Miami International Airport, Miami, Fla. John Paul Riddle, president. 7 C-47s, 4 AT-6s, 17 Vultee BT-13s, 4 Stinson Voyagers.**

**Willmore G. Riley, Crossett, Ark. Owner. Equipment omitted in report.**

**Ritchey Flying Service, Meacham Field, Ft. Worth, Texas. Edwin W. Ritchey, owner. 1 Cessna, 1 Noorduyn Norseman, 1 Stinson, 1 Piper Cruiser.**

**Riverside Flight Academy, 6720 Kelley St., Riverside, Calif. A. H. Des Mazes, president. 1 Piper P-12, 2 Cessna UC-78, 1 Ercooupe, 1 Taylorcraft.**

**Riverton Flying Service, Box 589, Riverton, Wyo. Karl Henry Baker, owner. Piper J-3.**

**Jack Robinson Flying School, Meacham Field, Ft. Worth, Texas. John E. Robinson, owner. 1 Piper J-5.**

**Rocco Flying Service, Municipal Airport, Pueblo, Colo. Joseph T. Rocco and W. W. Agnew, partners. No equipment.**

**Rocket Air Services, Inc., Municipal Airport, Omaha, Neb. D. H. Stewart, president. 1 Cessna T-50.**

**Rocky Mountain Air Service, Box 1135, Rifle, Colo. Paul H. Lindstrom, owner. 1 Piper J-3.**

**Rocky Mountain Air Service, Municipal Airport, Cody, Wyo. L. J. Siddle, owner. 2 Beechcraft, 3 Luscombes.**

**Rogers Air Service, Box 463, Hearne, Texas. Harry Rogers, Jr., owner. 1 Taylorcraft, 1 Boeing PT-17.**

**Royal Air Lines, Box 149, Augusta, Me. Robert L. Roy and Carl E. Erickson, partners. 2 Cessna T-50s, 2 Pipers, 1 Aeronca.**

**Royal Palms Flying Service, Inc.**, Page Field, Fort Myers, Fla. Gerald B. Moody, president. 1 Cessna T-50, 1 Aeronca, 5 Pipers, 6 Boeing Kadets.

**Rugby Flying Service**, Rugby, North Dakota. Clifford Albright, manager. 1 Taylorcraft, 2 Piper J-5s.

**Rushmore Flying Service**, Rapid City, So. Dakota. R. Letellier and I. F. Ellis, partners. 1 Cessna C-37, 1 Taylorcraft BC 12-D.

**San Benito Flying Service**, Box 1774, San Benito, Texas. King Cruse, owner. Equipment omitted in report.

**San Diego Sky Freight**, Gate 4, Lindbergh Field, San Diego, Calif. Edwin F. Bennett, Marilyn L. Semar, Walter H. Ray, Arnold J. Hecker, Joseph J. Hecker, partners. 1 DC-3.

**Sanford Aviation Co.**, Sanford Airport, Sanford, Me. W. J. B. Young, president. 2 Luscombes, 2 Cessnas, 1 Ercoupe, 1 Beech D-18.

**San Marcos Flying Service**, Box 51, San Marcos, Calif. P. DuBois and Beverly P. Douglas, partners. 1 Waco, 1 Taylorcraft, 1 Cessna 140, 2 Piper J-5A.

**San Mateo Airport**, San Mateo, Calif. Joseph H. Lorenz, president. 1 Cessna T-50, 1 Culver V, 1 Fairchild 24, 1 Taylorcraft.

**Santa Fe Air Taxi**, New Municipal Airport, Santa Fe, N. Mex. Donald B. Beers and Floyd U. Miller, partners. 1 Bellanca Crusair, 1 Culver, 1 Cessna.

**Saunders Air Service**, Ervella Orchards, Belvidere, N. J. James R. Saunders, owner. 1 Stinson.

**Schaper Air Transport Service**, Victory Airport, Minneapolis, Minn. Robert L., Joe R. and Warren L. Schaper, partners. 1 Cessna T-50, 1 Stinson 10A.

**Schwartz & Johnson Flying Service**, Box 192, Sidney, Neb. Byron M. Johnson and Keith S. Schwartz, partners. 2 Aeronca Champions.

**Scotty's Flying Service**, Greene County Airport, Waynesburg, Pa. Scott A. Blair, owner. 1 Aeronca 7-AC, 1 Piper J-5.

**Seneca Flying Service**, Municipal Airport, Seneca, Kansas. Alfred B. Ballew, owner. Equipment omitted.

**Severson School of Aviation**, Crookston, Minn. Kermit H. Severson, owner. 5 single light planes, 1 Single heavy.

**Shaw Aircraft Co.**, Iowa City, Iowa. Paul B. Shaw, owner. 1 Beechcraft, 1 Cessna 140.

**Sheridan Air Service**, Box 61, Sheridan, Wyo. Joseph H. Lohse and Jens L. Larsen, partners. 1 Cessna 140.

**Shields Flying Service**, Box 449, Neosho, Mo. Parks Shields, owner. 1 Aeronca Super Chief, 1 Vultee, 2 Piper J-3, 1 Piper J-5, 2 Fairchild.

**Siems Aero-Alders, Inc.**, Fremont, Nebraska. John T. Siems, president. 1 Piper J-5, 1 Fairchild.

**Silver Dollar Flying Service**, RFD 4, Box 66, Sequin, Texas. R. W. Kiser, owner. 2 Aeronca Champions.

**Silver Springs Airways**, Silver Springs, N. Y. Russell Brown, partner. 1 Waco, 1 Ercoupe, 1 Piper J-3.

**D. W. Simpson**, 904 S. E. Washington, Brownsville, Texas. Owner. 1 Rearwin, 1 Sky-ranger.

**Sloux Aero Service**, Devils Lake, North Dakota. Frank I. Bringham, owner. 3 Piper J-3s, 1 Piper Crusier, 1 Fairchild PT-19.

**Sloux City Flying Service, Inc.**, Box 1409, Sloux City, Iowa. Max Holdcroft, president. 1 Stinson, 1 Taylorcraft, 1 Piper J-3.

**Sisseton Flying Service**, Sisseton, S. D. Harold R. Brink, owner. 1 Piper J-3, 1 Aeronca Champion.

**Skroch Flying Service**, 1529 Broadway, Fargo, N. D. E. A. Skroch, owner. 1 Stinson 150.

**Sky Court Airport**, 801 No. 2nd St., Albuquerque, N. M. Harold B. Snell, owner. 7 Taylorcraft, 1 Piper J-3, 1 Stearman.

**Skyfreight Airlines, Inc.**, 1500 Gulf States Bldg., Dallas, Tex. R. L. Wingfield, president. 5 DC-3s.

**Sky Harbor**, 8500 E. 21st St., Indianapolis, Ind. Gordon Lackey, president. Equipment omitted.

**Skyharbor**, Box 427, Skyharbor Airport, Anahuac, Texas. Paul M. Alexander, owner. 2 Piper J-3s, 1 Piper PA-12.

**Skylane Flight Service**, Northeast Airport, Philadelphia, Pa. John H. DeSipio, Frederick C. Koenig and Frank Berardi, partners. 1 Cessna UC-78, 1 Cessna 140, 1 Vultee BT-12.

**Skylanes Express, Inc.**, Herbert Smart Airport, Macon, Ga. Sam C. Chandler, president. 1 Noorduyt Norseman, 1 Luscombe 8A, 1 NA AT-6, 1 NA Texan BC-1.

**Skylanes Unlimited, Inc.**, Municipal Airport, Niagara Falls, N. Y. C. H. Goodlin, president. 1 Lockheed Lodestar.

**Skyline, Inc.**, 1801 Ponce de Leon Blvd., Coral Gables, Fla. Arthur Lee Harrell, president. 2 DC-3s.

**Skytrain Air Express Co.**, Box 11, Durant, Okla. Edward D. McGee and Roy B. David, partners. 1 DC-3.

**Skyvans, Inc.**, 1128 So. St., Andrews Pl., Los Angeles, Calif. Henry C. Buckland, president. 1 DC-3.

**Skyways International, Inc.**, 717-718 Olympia Bldg., Miami, Fla. Robert J. Bergeron, president. 3 Lockheed Lodestars, 3 DC-3s, 1 Curtis Commando 46E.

**Slick Airways, Inc.**, Alamo Field, San Antonio, Tex. Earl F. Slick, president. 10 Curtiss-Wright C-46Es.

**W. B. Smith Air Service**, 13 S. 6th St., Columbia, Mo. W. B. Smith and N. F. Nissing, partners. 1 Norseman.

**Smitty's Flying Service**, Box 29, Spencer, Iowa. Oliver W. Smith, owner. Equipment omitted in report.

**Smyer-Forburger Aircraft Co.**, Box 452, Arkansas City, Kansas. James M. Smyer and J. C. Forburger, partners. 1 Cessna 120, 1 Piper J-3.

**Snyder-Robertson Flying Service**, Box 79, Ottawa, Kansas. Ralph W. Robertson and William C. Snyder, partners. Aeronca 7 AC.

**Thor Solberg**, Solberg-Hunterdon Airport, Whitehouse, N. J. Owner. Equipment omitted.

**Southridge Sky Park, Inc.**, Southridge, Mass. George Bergmark, Jr., president. 1 Stinson 150.

**South Central Air Transp. Inc.**, Fayetteville, Ark. Raymond J. Ellis, president. 3 Cessna T-50, 1 Stinson, 1 Piper PA-12.

**South East Airlines, Inc.**, Douglas Airport, Charlotte, N. C. William C. Teague, president. 1 DC-3, 2 Cessna T-50s. Owns 3 other Cessnas, 2 being converted and third "cannibalized".

**Southeastern Air Service, Inc.**, Municipal Airport, Atlanta, Ga. Ben T. Smith, president-treasurer. 1 Cessna T-50, 1 Waco Custom.

**Southern Airlines**, Masonic Temple Bldg., Alexandria, La. C. V. Smith, president-treasurer. 2 Beechcraft 18-S, 1 Cessna UC-78.

**Southern Air Services**, Box 290, Memphis, Tenn. Mrs. Louise C. Kent and J. F. Lanier, partners. 1 Beech D-18S, 1 Cessna UC-78, 1 Vultee BT-13.

**Southern Airways Co.**, Municipal Airport, Atlanta, Ga. F. W. Hulse, president. Equipment not specified in report.

**Southern Arizona Airlines, Inc.**, Box 1181, Tucson, Ariz. Edwin J. Montgomery, officer. 2 Cessnas, 1 Vultee BT-13, 1 Ercoupe.

**Southern Commercial Air Transport, Inc.**, 302 Balter Bldg., New Orleans, La. Paul R. Davis, president. 1 C-47.

**Southern Kansas Air Transit**, Anthony, Kansas. J. Howard Wilcox, owner. 3 Aeronca 7-AC, 1 Fairchild 24, 2 Interstates.

**Southern Minnesota Aviation Service, Inc.**, Municipal Airport, Owatonna, Minn. Thomas J. Welsh, president. 1 Aeronca, 1 Taylorcraft, 1 Ercoupe, 1 Piper.

**Southern Missouri Air Service, Inc.**, New Municipal Airport, Springfield, Mo. Oscar N. Hawkins, president. 1 Piper J-5, 1 Aeronca 7-AC.

**Southmost Aviation, Inc.**, Box 1847, Brownsville, Texas. John R. Tucker, president. 2 Aeronca Chiefs, 1 Fairchild PT-19, 1 Piper J-5.

**Southwest Aeromotive Corp.**, Queen City Airport, Springfield, Mo. Francis L. Rogers, president. Equipment omitted.

**Southwest Kansas Aircraft Sales**, Greens-

burg, Kansas. G. A. Bertram, owner. Single-engine land plane.

**Spa Air Service**, Ballston Spa, New York. William W. Streever, owner. 1 Fairchild 24, 2 Piper J-3.

**Spartan Airlines, Inc.**, 6900 East Apache, Tulsa, Okla. Maxwell W. Balfour, president. No equipment.

**The Sportair Corp.**, Hotel Taft, New Haven, Conn. R. F. Van Twisk, president-treasurer. 1 Beechcraft, 1 Aeronca Champion, 1 Cessna 140.

**Sportsmen's Airways, Inc.**, Sky Harbor, Duluth, Minn. J. C. Brockway, general manager. 1 Norseman, 1 Piper Cub.

**Springer Aero Service**, Springer, New Mexico. Henry W. Mares and Victor M. Reynolds, partners. 1 Stinson L-5, 1 Piper J-3.

**Springfield Aviation Co.**, Springfield, Ill. Carl A. Sorling, president. 4 Taylorcraft, 3 Aeronca 7 AC, 1 Waco.

**Springfield Flying Service**, E. Division Street Rd., Springfield, Mo. James C. Johnson, president. 2 Aeronca 7AC, 2 Piper J-3, 2 Fairchild PT-23, 1 Stearman PT-17, 3 Cessna 140.

**S. S. W., Inc.**, 7649 Old Georgetown Rd., Bethesda, Md. A. C. Schirmer, president. 1 DC-3.

**Standard Air Cargo**, Lindbergh Field, San Diego, Calif. Shields B. Craft, Edward T. Millitor, Natalie Y. Gray, Kai S. Mittry, partnership (limited). 2 DC-3, 1 Vultee BT-13.

**Standard Air Lines, Inc.** (new name of Fireball Air Express), Administration Bldg., Long Beach Municipal Airport, Long Beach, Calif. Stanley D. Weiss and James Fischgrund, partners. 3 DC-3s.

**Standard Flying Service**, 321 So. 11th St., Kansas City, Mo. W. N. Baker and Ray W. Baker, partners. 1 Fairchild PT-19, 1 Luscombe 8A.

**Standley Flying Service**, Municipal Airport, Lebanon, Mo. William E. Standley and Karl E. Reed, partners. 2 Aeronca 7-AC, 2 Aeronca 11-AC, 1 Piper J-5.

**Stark Flying Service**, Box 127, Coldwater, Kansas. Victor G. Stark, owner. 1 Ercoupe.

**State Airlines, Inc.**, Douglas Airport, Charlotte, N. C. H. K. Gilbert, president. 1 Stinson Reliant.

**The States Flying Service, Inc.**, Robbinsdale Airport, Crystal Village, Minn. G. H. Lindstan, president. 1 Waco, 1 Cessna C-37, 1 Cessna AW.

**St. Cloud Aircraft Sales**, Municipal Airport, St. Cloud, Minn. John H. Nelson, president. 3 Piper J-3s.

**Stephens College Flight Dept.**, Columbia, Mo. Hugh Stephens, president. 15 Aeroncas, 2 Fairchilds M62, 1 Cessna T-50, 1 Cessna 140, 1 Ercoupe.

**St. Francis Flying Service**, St. Francis, Kansas. Harry T. Resch, owner. 1 Aeronca 7-AC, 1 Cessna 140.

**St. Louis Airways**, Lambert Field, St. Louis, Mo. Carl E. M. Heumpe, owner. 1 Cessna T-50, 1 Stinson SR-10.

**Stoddard Aero Service**, Box 1057, Wink, Texas. W. L. Stoddard, owner. 2 Piper J-5s, 1 Stearman PT-13, 1 Culver.

**Storm Lake Flying Service**, Storm Lake, Iowa. Hal C. Blackston, owner. Equipment omitted.

**Stover Air Service**, McLaughlin Field, Hot Springs, Ark. John H. Stover, owner. 1 Cessna UC-78, 1 Howard, 1 Vultee BT-13, 2 Cubs, 1 Ercoupe.

**Willis C. Strittmatter**, Chestnut St., Toms River, N. J. John A. McGuire and Willis C. Strittmatter, partners. 2 Aeronca 7-AC.

**Strutman Boatyard & Seaplane Base**, Lake Road 19, Osage Beach, Mo. W. A. Strutman, owner. No equipment at present.

**Sam F. Stull**, 711 6th St., Fairbury, Neb. Owner. 3 Aeronca 7-AC, 1 Aeronca 11-AC, 1 Fairchild M-62A, 1 Cessna T-50.

**Sulphur Springs Flying Service**, RFD 4, Sulphur Springs, Texas. R. C. Connally, owner. 1 Aeronca 7AC, 1 Piper J-3, 2 Vultee BT-15.

**Summit City Airways**, Smith Field, Fort Wayne, Indiana. Alan S. Lichtenberg, owner. 1 Stinson 108.



**Sunbury Airport**, Sunbury, Pa. Robert L. Gilfert, proprietor.

**Sunland Air Transport, Inc.**, 1419 W. 10th St., No. Little Rock, Ark. G. H. Galarneau, president. 1 DC-3.

**Swift Air Service**, Air Terminal Bldg., Lindbergh Field, San Diego, Calif. J. W. Dowdle, Jr., owner. 2 Cessna UC-78, 1 Cessna Airmaster, 1 Globe Swift.

**Swinson Bros. Flying Service**, Municipal Airport, Pratt, Kansas. E. C. Swinson, partner. 1 Piper PA-12, 2 Taylorcraft.

**Tacoma Flying Service**, Ben Barry's Sky Harbor Airport, Box 297-B, Tacoma, Washington. Ben Barry, manager. 2 Luscombes, 1 Piper J-3, 1 Fleet.

**Tampa-New Orleans-Tampico Air Line**, 1819 Broadway, New York, N. Y. Hugh I. Wells, president. 2 Vought Sikorsky VS-44A.

**Terry Aircraft**, Thompson-Robbins Field, Helena, Ark. E. E. Terry, owner. 1 Cessna, 1 Piper Cub.

**Terry Flying Service**, Chapman Field, Waterloo, Iowa. Agnes W. Terry, owner. Equipment omitted in report.

**Texarkana Airmotive**, Municipal Airport, Texarkana, Ark. Stanley E. Snelson, owner. 1 Ercoupe, 1 Boeing PT-17, 2 Cessna UC-78.

**Texas Aero Service**, 1154 W. Washington St., Brownsville, Texas. J. L. Speer and J. H. Stuckey, partners. 1 Stinson.

**Texas Air Transport, Inc.**, 21 N. W. Street, Francis, Brownsville, Tex. B. Harold Byrd, president. 1 Cessna UC-78.

**John W. Thompson**, Swatara Valley Airport, Pine Grove, Pa. Owner. 1 Cessna T-50, 2 Pipers.

**Thunderbird Aviation Co.**, Gallup, N. Mex. D. B. Clarke and W. E. Clarke, partners. 1 Cessna UC-78, 1 Cessna 140, 1 Taylorcraft, 1 Ercoupe, 1 Cessna 120, 1 Piper Cub, 1 Fairchild PT-19.

**Tilse-Bowman Air Service**, Box 346, Bend, Oregon. A. J. Tilse, president. 1 Ercoupe, 2 Piper J-3, 1 Piper J-5, 1 Taylorcraft.

**Tinquist Aviation**, Grand Rapids, Michigan. Ted Tinquist, owner. 1 Taylorcraft, 1 Aeronca 7-AC.

**Tomco Aviation, Inc.**, Hangar 2, San Antonio Municipal Airport, San Antonio, Texas. Frederick L. Thomson, Jr., president-treasurer. 3 Piper J3, 1 Luscombe 8C, 1 Commonwealth Skyraider, 1 Fairchild PT-19.

**Tomlinson Flying Service**, Box 4196, 395 North St., Skowhegan, Maine. Leon L. Tomlinson, owner. 1 Piper J-5.

**Topeka Aircraft Sales & Service**, Municipal Airport, Topeka, Kansas. Dan L. Melinger, partner. 1 Beechcraft, 2 Luscombe 8A.

**Transair Charter Service**, 1803 Atlantic Ave., Virginia Beach, Va. R. J. Boher and John W. Parker, partners. 1 Cessna T-50, 1 Cessna UC-78.

**Trans-American Airlines**, 224 So. Michigan Ave., Chicago, Ill. Thomas J. and Gerald A. Kelly, partners. 1 Cessna T-50.

**Trans American Airways, Inc.**, 420 Lexington Ave., New York, N. Y. Edgar J. Wynn, president. 1 Lockheed Lodestar, 1 Grumman "Goose" amphibian.

**Transcalair Service**, Pacific Airmotive Airport, San Jose, Calif. Thomas W. Rose and Carroll J. Poe, partners. 1 Cessna UC-78, 1 Fairchild 24.

**Trans Caribbean Air Cargo Lines, Inc.**, 36 W. 44th St., New York, N. Y. O. Roy Chalk, president. 6 DC-3s, 3 DC-4s.

**Transcontinental Air Express Corp.**, Stockton, Calif. Richard J. White, officer. 2 DC-3s, 1 DC-4.

**Trans-Luxury Airlines, Inc.**, Hotel Lincoln, 44th St. & 8th Ave., New York, N. Y. Edward Ware Tabor, president. 2 DC-3s, 1 Cessna UC-78.

**Transocean Air Lines**, Oakland Municipal Airport, Oakland, Calif. Orvis M. Nelson, president. 4 Douglas C-54, 1 Cessna UC-78.

**Trans-Pacific Airlines, Ltd.**, 1128 Smith St., Honolulu, T. H. Ruddy F. Tongg, president. 1 C-47.

**Tri Angle Airport, Inc.**, Cross Keys, Sewell, N. J. John H. Lentine, president. 2 Aeronca AC.

**Triangle Air Transport, Inc.**, Salem Airport, Salem, N. J. Robert Gillespie, president. 1 Piper J-5, 1 Ercoupe.

**Triangle Aviation, Inc.**, Stanton, Minn. M. O. Manuel, president. 1 3-place, 1 2-place planes.

**Tucumcari Flying Club**, Box 48, Tucumcari, New Mexico. W. L. Coate and H. H. Hickman, partners. 1 Piper J-3, 1 Piper J-4E.

**Turner-Mack Aircraft Co.**, Municipal Airport, Newton, Kansas. Babe Turner, Al Nordstrom and H. H. Mack, partners. 1 Cessna T50, 1 Cessna 140, 1 Piper, 1 Taylorcraft.

**Roscoe Turner Aeronautical Corp.**, Municipal Airport, Indianapolis, Indiana. Col. Roscoe Turner, president. 12 Taylorcrafts, 1 Piper Cruiser, 3 Stinsons, 3 Vultee BT-13, 1 Beechcraft, 1 Douglas B-23.

**Twin Cities Flying Service**, Twin Cities Airport, Benton Harbor, Mich. B. F. and C. A. Groh, partners. Unknown.

**Union Southern Airlines** (formerly International Air Lines), 8101 Empire State Bldg., New York, N. Y. Leonard L. Talcher, president. 1 C-47.

**U. S. Airlines, Inc.**, Pinella County Airport, St. Petersburg, Fla. Harry R. Playford, president. 12 C-47s.

**U. S. Flying Services, Inc.**, Pinella County Airport, St. Petersburg, Fla. Harry H. Playford, president. 1 Beechcraft, 3 Cessna, 1 Stinson.

**Valaire, Inc.**, Central Valley Airport, Merced, Tex. Yates Stafford, president. 1 Norseman, 1 Piper, 2 Vultee L-5s.

**Valentine Air Service**, Valentine, Nebraska. H. D. Christensen and K. L. Brown, partners. 1 Piper J-3, 1 Aeronca Chief.

**Valley Air Service**, Valley City, N. Dak. R. E. Miller, operator. Equipment omitted.

**Valley Air Service**, Grand Junction, Colo. J. F. Gregg and G. W. McFall, partners. 4 Taylorcraft.

**Valley Star Dusters**, Harlingen, Texas. Ray Shifflett and T. H. Bookout, partners. 3 Travelair, 1 Stearman.

**V. D. Lines**, 4702 Burnet St., Sherman Oaks, Calif. Pierre Valin and Don Dwiggins, partners. 1 Cessna T-50, 2 Vultee BT-13s.

**Vernon Flying Service**, Vernon Air Park, Vernon, Texas. David B. Purinton and W. Norman Screws, partners. 1 Aeronca Tandam, 1 Aeronca Champion, 1 Stearman.

**Verns Flying Service**, Wadena, Minn. Vernon J. Vogel, owner. 1 Piper J-3, 1 Fairchild PT-19, 1 Ercoupe, 1 Taylorcraft.

**Veterans Air Express Co.**, 11 Commerce St., Newark, N. J. Saunie Gravely, president. 2 DC-3s, 2 DC-4s, 1 Vultee BT-13.

**Viking Air Transport**, Grand Central Airport, Glendale, Calif. R. R. Hart, president. 3 DC-3s.

**Virginia Airways**, Charlottesville, Va. S. A. Jessup, president. No equipment.

**Reverent Al Waer Lompac Flying Service**, Box 742, Lompac, Calif. Rev. Al Waer, owner. 1 Piper Cruiser.

**Waldo Air Service**, Republican City, Nebr. James B. Waldo, owner. 1 Aeronca Chief, 1 Vultee.

**Wallace Air Service, Inc.**, Felts Field, Spokane, Washington. Hilford R. Wallace, president. 6 Pipers, 2 Taylorcrafts, 1 Ercoupe, 2 Aeroncas, 2 Waco trainers, 1 Vultee BT-13, 1 Fairchild 24, 2 L-5s.

**Wards Flying Service**, RFD 4, Dexter, Mo. Lee Roy Ward, owner. Luscombe 8A.

**Warren Bros. Flying Service**, Box 205, Roxboro, N. C. M. C. and R. W. Warren, partners. 1 Piper J3, 1 Piper J5, 1 Luscombe 8A.

**Washington Flying Service**, Washington, Iowa. R. C. Scott, Estate, owner. 4 Piper J-3, 1 Aeronca 7-AC, 1 Aeronca C-65, 1 Ryan.

**Washington Skyways**, Ephrata, Wash. Wayne A. Klever and Hubert H. Coyne, partners. 1 Piper J-3, 1 Vultee BT-13A.

**Waterman Airlines, Inc.**, Mobile, Alabama. N. G. Nicolson, president. 1 DC-3, 1 DC-4.

**Wayne Air Service**, Wayne, Nebraska. R. G. Fuelberth, owner. Equipment omitted.

**G. P. Weisman**, Kingsville, Texas, owner. 2 Piper Cubs, 1 Aeronca Trainer.

**Weiss Aircraft**, Route 12, Kirkwood, Missouri. Harley Weiss and Lilburn Weiss, partners. Equipment omitted.

**Welles Aircraft Corp.**, Chemung County Airport, Elmira, N. Y. Gillett Welles, Jr., Pres. 1 Ercoupe.

**Wellington Flying Service**, Box 663, Wellington, Texas. Weldon B. Thomas, owner. Piper J-5.

**Wells School of Aviation, Inc.**, Box 471, Hutchinson, Kansas. Rohland O. Wells, president. 1 Luscombe 8A.

**Wenatchee Air Service**, Fancher Field, Wenatchee, Wash. Kenneth D. Paton, president. 10 single-engine land and seaplanes.

**Weslaco Flying Service**, Weslaco, Texas. Frank Yoder, president. 2 Piper Cubs.

**Western Air Charters**, Los Angeles Municipal Airport, Los Angeles, Calif. Lee Davis, owner. 1 C-47, 1 Waco, 1 Fairchild 45.

**Western Continental Air Lines, Inc.**, Grand Central Airport, Glendale, Calif. William E. Candy, president. 1 Cessna T-50, 1 Grumman G44A, 1 Lockheed 10A.

**Western Flying Service**, Winner, South Dakota. D. W. Mercer, president. 3 Aeronca 7 AC.

**Western Massachusetts Airlines**, Box 924, Pittsfield, Mass. Harry L. Francis and Alfred O. Cockrill, partners. 1 Cessna T-50.

**Wests Seaplane Service**, Ely, Minn. Elwyn West, owner. 4 sea and landplanes.

**West Virginia Air Service, Inc.**, Clarksburg, W. Va. M. R. Bingham, president. 1 Stinson, 4 Piper J-3, 1 Piper PA-12.

**Whaley and Merrick Aviation**, Route 6, Gainesville, Texas. James N. Whaley, and Jack R. Merrick, partners. 1 Aeronca.

**White Bear Flying Service**, South Street, St. Paul, Minn. A. R. Metzger, owner. Ercoupe, Aeronca Chief, Aeronca Champion.

**White Flying Service**, Municipal Airport, Brownwood, Texas. Alva N. White, owner. 1 Piper J-5.

**White River Flying Service**, Meeker Airport, Meeker, Colo. K. E. Cowdry, owner. 1 Taylorcraft.

**Willett's Flying Service**, Brookfield Airport, Brookfield, Mass. Gussie L. Willett, owner. Equipment omitted.

**A. G. Williams**, 44 Fort Brown, Brownsville, Texas. A. G. Williams, III, owner. 1 Noorduyn Norseman.

**Williams Flying Service**, Box 430, Adams Field, Little Rock, Ark. Floyd A. Williams, owner. 4 Aeronca 7-AC, 2 Aeronca 11-AC.

**Williamson Air Service**, Stapleton Airfield, Denver, Colo. G. M. Williamson, owner. 1 Cessna UC-78.

**Williamson School of Aviation**, Gage Field, Teague, Texas. Maurice Gage, owner. 1 Aeronca 7AC, 1 Aeronca 11AC.

**Willis Air Service, Inc.** (The Commander Line), 130 William St., New York, N. Y. Charles F. Willis, Jr., president. 2 C-47s, 1 C-54, leases 3 C-47s.

**Willmar Air Service**, Municipal Airport, Willmar, Minn. John L. Rice, owner. 3 2-place, 1 3-place.

**Wilson & Colvin Airport**, Route 4, Ennis, Texas. James K. Wilson and W. T. Colvin. 2 Stearman.

**Winfield Air Service**, Box 610, Winfield, Kansas. Warren F. Jones and Leonard J. Schmitt, partners. 2 Piper J-3, 1 Aeronca Tandam.

**Winged Cargo, Inc.**, 921 Land Title Bldg., Philadelphia, Pa. Fred P. Dollenberg, president. 5 DC-3s, 1 DC-4, 5 CG-4A gliders.

**Wings of Mercy, Inc.**, Belleville, Ill. W. E. Ackermann, president. 5 Stearmans.

**Winona Flying Service**, Winona, Minn. Hilman C. Aukre, owner. 1 Waco, 2 Aeroncas.

**Wisconsin Central Airlines, Inc.**, Clintonville Airport, Clintonville, Wisc. Francis M. Higgins, president. 2 Cessnas UC-78.

**Leonard A. Woeppel**, Martin, South Dakota. Owner. Equipment omitted.

**Jesse B. Woffard**, 145 Avenue G. Hereford, Texas. Owner. 1 Piper Cruiser, 1 Aeronca Champion, 3 Stearmans.

**Chas. A. Wood**, Box 395, Clay Center, Kansas. Owner. 1 Monocoupe 90-A, 1 Piper J-3.

**World Flying Service**, Box 692, Worland, Wyo. Clinton R. Rasmussen, owner. 2 Aeronca 7-ACs, 1 Cessna 140.

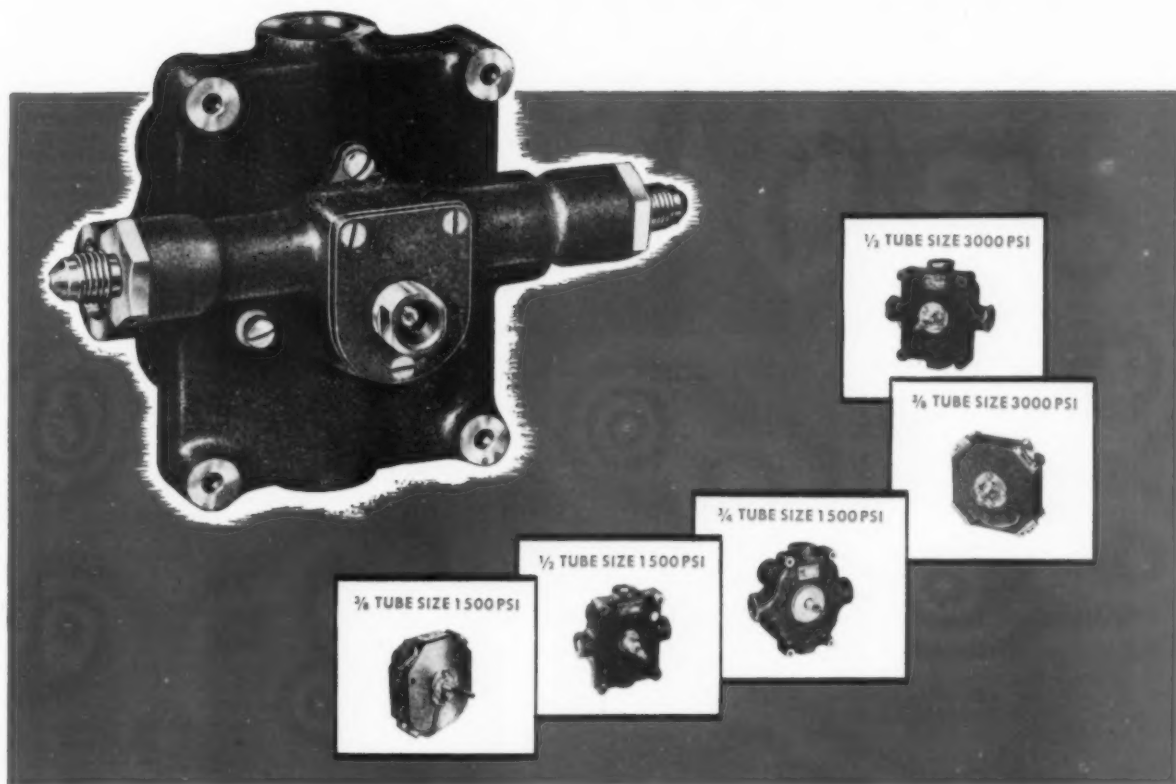
**Wright Flying Service**, Williston, N. Dak. Bruce Wright, owner. 1 Piper J-5A.

**The Wyoming Air Service**, Box 260, Lander, Wyo. Carl Powell and A. H. Chaffee, partners. 3 Piper J-3, 1 Taylorcraft, 1 Cessna C-37.

**Yoakum Flying Service**, Chadron, Nebraska. George and Percy Yoakum, partners. 1 Cessna 140, 1 Fairchild.

**H. C. Young**, Nicholas Airport, Marshall, Missouri. Owner. Equipment omitted.

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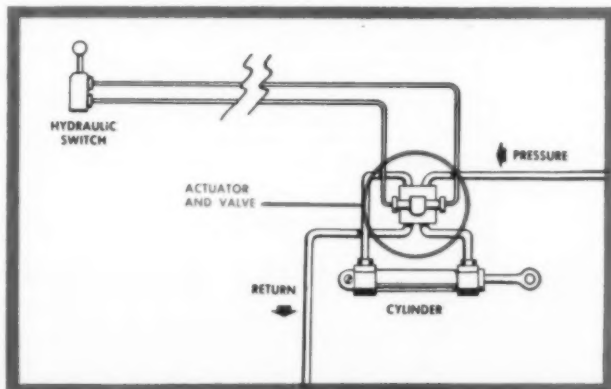
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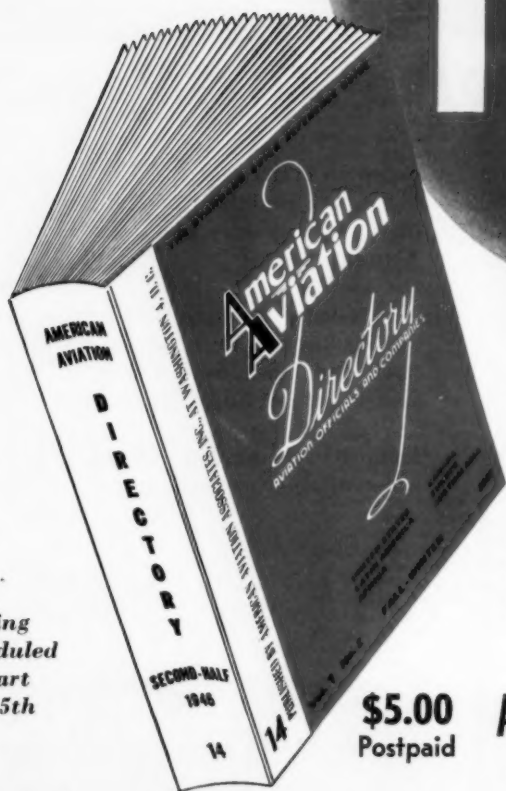
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## Rumors of Increase In State Gas Taxes Stir Burdened Air Industry

Forty-four state legislatures are scheduled to meet next year and already the airline industry has heard talk in at least 12 states of bills that would impose a state tax on aviation fuel.

While 27 states and the District of Columbia either exempt aviation gasoline from taxes or refund it in full where paid, it is understood that there are movements on foot in some of these states to tap this source of revenue, probably as a means of financing the state's share of airport development expenses.

These activities in behalf of a state tax on aviation gasoline are still largely in the discussion stage. However it is felt that in many cases, the discussions will result in the introduction of bills. Talk of new aviation gas tax legislation has been heard in the following states: California, Indiana, Arizona, Arkansas, Florida, New York, New Jersey, New Hampshire, Oklahoma, Texas, Michigan and Colorado.

♦ **The Board of Directors** of the Air Transport Association, in a meeting held Sept. 17, reiterated its opposition to the principle of state taxes on aviation gasoline.

Interstate air carriers now pay a 1½¢ per gallon Federal tax on aviation gasoline. The airlines generally feel that an aviation tax at the Federal level is an equitable tax. Revenue from such tax goes into the public treasury which foots the bill for the development and maintenance of Federal airways and other facilities affecting interstate air commerce. However the airlines do not feel that they should pay state aviation fuel taxes because generally these taxes are not used for developments that affect interstate air commerce.

It was pointed out by one airline representative that when the first gas tax was levied in Oregon, and this for road building purposes, the state exempted from payment those purchasers of gasoline who did not use it in automobiles. Most states followed the Oregon lead when they passed gasoline levies.

♦ **Congress, it appears** certain, will give serious study to legislation which will set up an equitable formula for taxation of the airlines. Such legislation was introduced during this session, based on a study by a special CAB committee. This legislation would provide a formula for ad valorem taxes of airline equipment and property by the states. Increase in the Federal tax on aviation fuel is another prospect.

Congressional committees have asked the Civil Aeronautics Administrator as well as the airline industry itself to bring forth plans whereby the airlines will share, in a greater degree, in the costs of Federal expenses allocated to interstate air commerce. CAA already has introduced service charges which effect the airlines and it is understood that others are contemplated.

### Hawaiian Purchases Sikorsky Helicopter

Purchase of a Sikorsky S-51 has been announced by Hawaiian Airlines, Stanley C. Kennedy, president of the inter-island air carrier, said the helicopter's commercial possibility would be tested, especially as to some of the more inaccessible points located in the Pacific Island group.



**New AAL Ticket**—Designed strictly for speed this new ticket form went across the Washington ticket counters of American Airlines for the first time October 14. Only a matter of seconds is needed to fill out the new form which has fares, taxes and originating and destination points in sequence printed on its face. The only necessary fill-in information is flight number and date. Refunds for unused portions are printed on the reverse side.

## Court Injunction Delay In Delivery of C-54's

Issuance of an injunction order has tied up the disposition of 38 Douglas C-54 aircraft that were originally intended for delivery to three U. S. international carriers to replace Lockheed Constellations, temporarily grounded by CAA order.

The injunction was issued by U. S. District Court Judge Henry Schweinhaut on petition of George W. Tompkins, of San Francisco and Ralph Cox, Jr., of New York City. The order prevents sale of the planes until the U. S. Court of Appeals has had an opportunity to act upon an appeal taken by Tompkins and Cox from Judge Schweinhaut's decision of Oct. 1 in which he held that transfer of the planes was in the public interest, that rights of veterans under the Surplus Property Act must be subordinated to that of the national interest. Tompkins and Cox represent veterans organizations and had filed priority certificates for the purchase of the planes.

In another suit, Tompkins asked the District Court for a mandatory order which would compel the War Assets Administration to sell 10 of the surplus planes to veterans, preferably to himself.

## Eastern Connects All Points With Air-Freight Service

All points on Eastern's 67-city domestic and foreign routes were connected with air freight service by the company today. Tariffs, filed with CAB, will be from airport to airport. "Pick-up and delivery" service is pending arrangement of ground transportation. Regularly scheduled flights will handle the service, according to Capt. E. V. Rickenbacker, president of Eastern. As new equipment becomes available and as demand warrants, special freight-carrying aircraft will be put into service.

## TWA Divides Foreign, Domestic Operations

Transcontinental & Western Air last fortnight placed in effect a new organizational structure which set up separate domestic and international divisions within a single operating unit and at the same time moved toward a corporate change of name to Trans World Airline. It has used the latter name in all advertising for the past several months.

Backbone of TWA's new organization is comprised of three main units—1. the international division, whose managing director is T. B. Wilson, who also serves as chairman of the board; 2. the transcontinental division, headed by Paul Richter as managing director; 3. the system staff, comprised of officers and department heads who establish and coordinate policies of a system nature, serve both divisions in some functions of common interest. ♦ **TWA's initial step** in changing its name was taken in the establishment of a Delaware corporation under the name of Trans World Air Line, Inc. Arthur M. Jens, Jr., secretary of TWA, is secretary of the new company. Capitalization is \$100,000. Its purpose is to engage in air transport.

Under the new organization structure, the international and domestic divisions will have essentially similar operations. In each there will be four regions, with the general managers or directors reporting directly to the respective directors.

## Pan-Am Will Fly Dry Ice To South-American Markets

Pan American World Airways has announced that dry ice shipped by the Liquid Carbonic Corp. of America would soon be flying in large quantities to South American points. Recent tests conducted by the two companies in Miami have shown that the heretofore accepted belief that the volatile quality of dry ice dispersed too much carbon dioxide for the confined quarters of an airplane was not true.

Acting on the results of the tests, the carbonic corporation is making plans to set up South American plants whereby dry ice may be flown to even more remote points in the latin territory than presently anticipated.

## 250,000 First Covers on New Airmail

The three concurrent maiden flights of "Flying Postoffices" making the inauguration of the new five cent mail rate which went into effect on October 1 carried approximately 250,000 first flight covers and letters, the U. S. Post Office has revealed. The Fairchild Packet C-82 and two Douglas DC-4's which were converted by American Airlines, Trans-World Airlines, and United Airlines especially for the transcontinental flights landed and picked up mail in 38 leading cities in 19 states and the District of Columbia.

## American Aviation Promotes Elofson

O. R. Elofson, for four years in the advertising department of the American Aviation Publications and since February the director of advertising, has been elected vice president of the publishing company, American Aviation Associates, Inc. Mr. Elofson assumes charge of both the business and advertising departments with headquarters at the main company offices in Washington.

## Chicago Gets Two New Non-Stop Air Services

Delta Air Lines began its new non-stop service between Miami and Chicago Nov. 1 to become the second carrier in two weeks to inaugurate new non-stop services in and out of Chicago. Capital Airlines-PCA inaugurated non-stop flights between Washington and Chicago on Oct. 17. Both of the Chicago-terminated lines are using Douglas DC-4's.

• Eastern Air Lines began regularly scheduled passenger, mail and air express service into Lexington-Frankfurt, Ky., on October 13 providing the area with one east and one westbound flight each day.

• Air France, now serving 51 countries in five continents, will soon inaugurate air freight service between New York and points on its world-wide network.

• With the deletion of overnight stops at Singapore and Calcutta and the parallel institution of a stop at Bangkok, KLM Royal Dutch Airlines has cut the travel time from Amsterdam to Batavia to four instead of four and a half days.

• Conforming to a bi-lateral air transport agreement signed last month by the U. S. and Brazil, Pan-American World Airways has begun to route all flights between east coast cities of North and South America over the direct path through the interior of Brazil to Rio de Janeiro and Buenos Aires and has increased frequency of the flights.

## Airline Commentary

By ERIC BRAMLEY

TRAFFIC vice presidents and schedule jugglers may be interested in a letter which we received from a fellow who used to work for an airline (he doesn't want his name used) and who is now a close observer of how the airlines handle things . . . He saw an article in our September 15 issue, telling how TWA has set up a grading system to improve the ground delay situation . . . "To a degree, it has always been amusing to me that the airlines have always talked faster transportation than they actually delivered," he says. "Normally, to airline people, an origination out of their station, after it has finally departed, is like yesterday's newspaper—forgotten. For some unaccountable reason they automatically assume that if the flight left 10 minutes late it would either be 10 minutes late at termination or perhaps the crew would pick up the loss en route and everything would be just dandy. Few, if any, took into consideration the accumulated delays en route—probably because (a) the customers were far, far away when they enjoyed their late arrival and (b) the customers who were enjoying a late arrival at their own station seldom if ever took time out to raise hell with anybody, mainly because the delayed arrival robbed them of the time they might have used for idle chit-chat . . . Airline schedules are set up on a sort of "ideal" basis. They are a shining grail—a mark to shoot at. They look good in the Guide . . . But, unfortunately, the customer, unless he is an old hand at air travel and has learned to keep his enthusiasm well in hand, stupidly thinks that when the schedule says he will arrive in New York at 3 o'clock that he will do just that, and makes arrangements . . . And that is where he makes his big mistake, as witnesses the TWA admission publicly that in June . . . only 26% of DC-3 and 12% of Connie flights arrived on time . . . Would it be too much to ask that the carriers go in for truth in schedules? Who are they competing with—on paper, that is? With each other, certainly. They aren't having a schedule race with the railroads or the buslines. Why not all agree to add 10% to the 'ideal' schedule—a margin of safety to take care of the stacking at LaGuardia and the lost mailbag at Petropolis. Then TWA could have reported, perhaps, that in June 26% of DC-3 flights were ahead of time and 75% were on time . . . Of course, there's another way to do it, but it would involve paying out money, which is unpleasant to everybody. The railroads . . . used to refund your extra fare if one of those luxury jobs missed fire on schedule. You couldn't very well do that on ordinary runs, but if I paid extra to get somewhere fast in a Connie or what have you, and I was one of the 88% that didn't, my feelings would be considerably mollified if the line gave me back the bonus I had paid . . ." We don't know whether this fellow is on or off the beam, but we print his letter so that the experts can have a look at it. . . .

A couple of issues ago we took a crack at the Pullman Co. for some of the advertisements that have been running in national publications—the ones about how wife sleeps soundly because husband is safe on a train . . . The response to our little dig was quite remarkable—seems as though a lot of other people don't think much of the Pullman and railroad advertising . . . Our friend Ed Slattery, chief of the Civil Aeronautics Board's public information section, writes: "I thought your column . . . might be interested in a very large highway signboard advertisement which I recently noted just beyond the boundary of Mills Field, San Francisco . . . and which confronts all air travelers as they drive into the city from the airport. It is set up as follows: 'Next time . . . Try the train and be SAFE. Union Pacific Railroad' . . . The railroad could well lay off this theme—it backfires too easily, as witness another letter from William J. Morrissey, of Long Beach, Calif. . . . He encloses the front page of a Los Angeles newspaper, with big black headlines about a Union Pacific accident killing six and injuring 32 . . . He attaches to it a UP ad stating 'It's a comfortable feeling to know you'll get there—by train' . . . Now ordinarily we don't like to discuss accidents in this column (including rail accidents) but one bad turn deserves another . . . Everyone will have an accident now and then, so maybe the railroads better cut out this "next time try the train and be safe" stuff . . . Or, as Mr. Morrissey puts it: "Will these folks ever learn to keep their necks in?" . . .

We want to thank the passenger service directors of the airlines for inviting us to speak to their Atlanta meeting last month . . . We considered it quite an honor to be on the program . . . We told them what we had found wrong with passenger service, and the comments were well received—at least no one cut our throat . . . It might interest you to know that this group is definitely concerned with the tipping situation at airports, and plans to do something about it . . . Maybe our campaign will be successful . . .

Caribbean Atlantic Airlines, San Juan, P.R., has a sign giving the following humorous definition of a radio engineer: "A radio engineer is a person who passes as an exacting expert on the basis of being able to turn out, with prolific fortitude, infinite strings of incomprehensible formulae, calculated with micromatic precision, from vague assumptions, which are based on debatable figures taken from inconclusive experiments, carried out with instruments of problematical accuracy by persons of doubtful reliability and questionable mentality, for the avowed purpose of annoying and confounding a hopelessly chimerical group of esoteric fanatics, referred to, altogether too frequently, as 'practical radiomen' . . . Try saying it all in one breath . . .

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for setting a 11,236 mile record non-stop flight with  
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**LOCKHEED AIRCRAFT CORP.**

for manufacturing the "Truculent Turtle", the P2V Neptune  
type patrol plane that made the flight.

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for manufacturing the Cyclone R 3350-8 18-cylinder  
engines, that powered the flight of the "Truculent Turtle."



*We Are Also Proud...*

to have modernized and subsequently tested these engines  
in our own shops immediately previous to installation in  
the "Truculent Turtle," in the best tradition of our service  
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**GRAND CENTRAL AIRPORT CO.**

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**GRAND CENTRAL AIR TERMINAL**  
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**COMPLETE SERVICE FOR EVERY TYPE OF AIRPLANE AND ENGINE**



## Airline Personnel

**Randall E. Knight**, former TWA's International Division traffic representative in St. Louis, has been named sales supervisor-athletics and theatrical, under contract and charter manager Ben Oakes, with headquarters in Kansas City.

**Harry E. Campbell** has been placed in charge of TWA's flight training in Kansas City.

**E. O. Morgan** has replaced **Nelson Milliken** as sales manager for American Airlines' Hollywood office. **Morgan**, whose former position was as district supervisor of passenger sales in Los Angeles, has had ten years with AAL. **Milliken** resigned to operate a private travel agency, in partnership with **W. Thorne "Whitey" Rimes**, also an ex-AAL agency regional manager.

**Bruce Blynn** has been appointed assistant to **L. G. Fritz**, American Airlines' vice president for operations. **Blynn** will be responsible for planning of organization, workloads and manpower.

**Peter E. Kraght** has been named assistant supervisor of Meteorology for American Airlines. His former post as supervisor of meteorology in New York has been filled by **Maynard E. Smith**.

**Samuel C. Pace**, familiar with the region through his work many years ago on the Fort Worth Star-Telegram, has been appointed American Airlines Southern Regional Director of Public Relations.



Blynn

Kraght

Pace

**Marjery L. Hunter** has been named as liaison for keeping Northwest Airlines' passengers up-to-date on passport regulation changes of all countries touched by the airline.

**Kenworthy Hall** has been promoted to city traffic manager of Delta Airlines' Miami office.

**Hank W. van Tuyl** has been appointed Secretary for Special Services to **Albert Plesman**, president and director of KLM Royal Dutch Airlines. He will also act as Public Relations Officer for the Netherlands.

**Jayne Kommer** has replaced **Jane Russell** as Chief Stewardess for Chicago and Southern Airlines.

**F. H. Hankins, Jr.** is now in charge of all operations throughout Pan American Airways' Atlantic division.

**John L. Lobinger, Jr.** is the new advertising manager for Wiggins Airways.

**H. F. Milley**, **Juan Holms, Jr.**, and **H. W. Peterson** have been named to the respective manager-ships of the Eastern, Midwestern, and Western sales offices of Pan American Airways.

**Ralph Savory** has been named chief pilot for Pan American Airways' Alaska Region.



Savory

Kramer

Hankins

**Stephen A. Noble** has joined the Passenger Sales Staff of American Airlines in Philadelphia. He has just returned to the company after 3 and a half years in the Army's Air Transport Command.

**Harold W. Houston** has been named director of food service for Northwest Airlines' domestic and pending international routes. He succeeds **C. Wesley Archbold**.

**R. H. Weihe** is now director of communications for Northwest Airlines. He moved up from the position of supervisor of ground control to replace **Harry L. Morton**.

**C. E. Buxton**, formerly chief agent for Eastern Air Lines in Louisville, Ky., has been promoted to station manager at Lexington-Frankfort, Ky., where the airline has recently inaugurated service. **Donn H. Rudd**, will be sales and traffic representative at the new Eastern stop.

**Kenneth Murdock** has been named assistant secretary of American Overseas Airlines, and **W. Holden White**, former chief American censor in the London Office of Censorship, is now European director of public relations for ACA.

**James J. Fauteux** will direct traffic activities in the Orient for Northwest Airlines' impending operation to Tokyo, Shanghai and Manila. **Gordon MacLaren** succeeds him as New York regional traffic manager.



Murdock

White

Fauteux

**G. T. Kellogg**, Washington newspaperman, has been appointed Washington publicity representative for United Air Lines.

**W. Donald Young**, formerly with American Airlines, has assumed new duties with the Pan American Airways traffic department at Los Angeles.

**Joseph H. Cassen**, former supervisor of international information for American Airlines, has been named director of international procedures. **James J. Davin, Jr.** has been appointed district traffic and sales manager for United Air Lines at Pittsburgh. He succeeds **Ross Taylor**, who has resigned.

**Russell I. McLaughlin** succeeds **Roy Roos**, now district traffic and sales manager at Fresno, as district traffic and sales manager at Tacoma, Wash., for United Air Lines.

**O. C. Richerson**, regional manager of operations, United Air Lines, has named the following as station managers: **H. P. Hyde** at Monterey, Calif.; **F. M. Thompson**, at Eureka, Calif.; **J. M. Fogarty** at Bend, Ore.; **W. T. McIntyre**, Klamath Falls, Ore.; and **E. H. Carlson**, The Dalles, Ore.

**G. W. Bowen** has been promoted to superintendent of regional communications for United Air Lines at San Francisco replacing **H. L. Garrison**. **Garrison** is now assistant superintendent of telecommunications at general headquarters in Chicago.

**Bertram F. Sternfield** has been appointed Eastern regional personnel supervisor for Northwest Airlines with headquarters in New York.



Sternfield

Davin

McLaughlin

**Miss Aleene Mook** is now chief stewardess for National Airlines. **Miss Marion Pou** will be assistant chief stewardess replacing **Miss Margaret Wilson** who has been appointed to the new position of divisional chief stewardess.

### De Florez Joins Naval Advisors

Secretary of the Navy **James Forrestal** has named **Rear Admiral Luis De Florez, USNR**, as aviation representative to the ten-member Naval Research Advisory Committee. Until recently Assistant Chief of Naval Research, **De Florez**, a Naval Aviator known for outstanding contributions particularly to special devices for aviation, has returned to inactive duty. The new committee, which met for the first time in Washington this week, was formed in accordance with provisions of the Vinson Act, Public Law 588 of the 79th Congress.

### TACA Curtails U. S. Personnel But Expands Miami Repair Base

TACA Airways has announced a further curtailment of personnel in the U. S. According to company officials, however, the Miami repair and overhaul base will be substantially expanded soon.

Whereas actual operations room will be expanded, administrative functions will be moved from the U. S. to the operating companies in Central and South America in a move to reduce system expenses and advance the date at which TACA may realize a substantial profit.

Announcement was also made that the Miami-Havana charter operations have been complementary to scheduled operations conducted by TACA between Havana and other Central American cities for the past few weeks. TACA's Brazilian affiliate, Aerovias Brasil S. A., has received a common carrier certificate for service between Miami and Rio. The company had been operating on a three times a week charter basis.

### Northwest Hikes Agent Pay, Grants Overtime, Holidays

Eight hundred agents and supervisors of Northwest Airlines received \$10 to \$60 a month increases recently through efforts of the Brotherhood of Railway Clerks. Pay scales now range from \$180 to \$270 a month for senior transport agents in charge.

Full overtime benefits including seven holidays or double time for work in that period were also granted. Two weeks notice and submission of all disputes to a balanced labor-management board with a "neutral" National Mediation Board choice as chairman were among the points gained by the employees.

### Gander Employees Number 500

There are now nearly 500 airline employees at Gander, northeast part of Newfoundland. All the lines jointly are organizing recreation since there are no city facilities nearby. A bowling alley has been set up. Tennis is played in a big hangar all year round. Movies every night. Ping pong; and a gymnasium with full-time instructor is being set up. It's quite interesting—this big terminal way up north. The new passenger terminal was opened October 1 and is a honey—spacious, well directed, bar, snack bar, lounge and restaurant 24 hours a day.

### Empire Promotes Traffic Heads

**Everett A. Eisenberg**, formerly General Traffic Manager of Empire Airlines, has been promoted to the position of Assistant to the President. He is succeeded by **Gordon B. Simpkins**, formerly Passenger Traffic Manager.

A graduate of the Harvard Law School and an ex-AAF pilot with ATC, Mr. Eisenberg just joined Empire in January. Mr. Simpkins, formerly with American Airlines, joined Empire in April.

### Basey Moves to Pacific

**Elmer Basey** has been appointed general traffic manager of Pacific Air Lines, Los Angeles. He formerly was employed with United Air Lines and TWA.

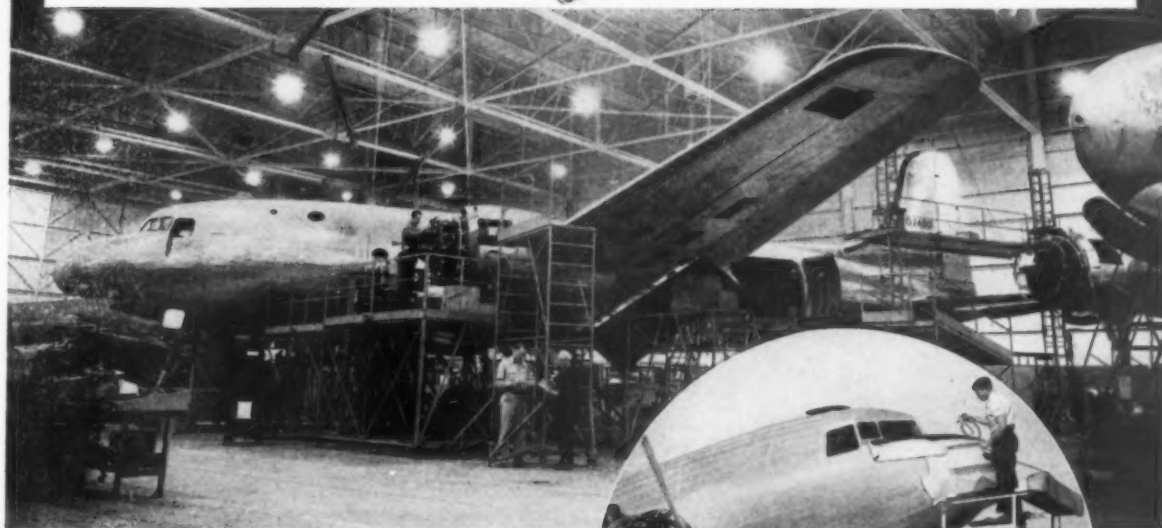
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C-47 C-54

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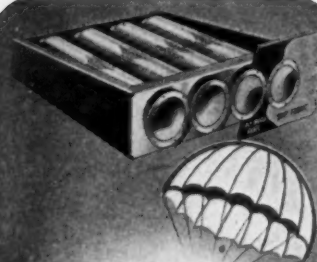
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Inc., 3000 Ocean Park Boulevard, Santa Monica, California, for name of Douglas Authorized Conversion Center or Douglas Approved Service Center nearest you.

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*Thousands of candle power  
--released  
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*--when danger  
threatens. Four  
packages of  
lights to help*



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safe landing  
when in  
trouble at night.*

**Play SAFE with**

**INTERNATIONAL Flares**

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## Too Much Competition Possible, Young Warns

CAB Member Clarence M. Young warned last fortnight that the Board may be establishing too much competition and too many parallel air routes. He said so in a somewhat belated concurring and dissenting opinion which was part of the Board's decision in the American-TWA-United-PCA Route Consolidation Case. (The majority opinion was issued late in September.)

Colonel Young objected particularly to the Board's grant of a direct Chicago-Washington routing to PCA. He said that he believed "the majority opinion failed to realize the full implication of the multiple route pattern the decision . . . created." For all practical purposes, four direct and four divergent routings now exist between Washington and Chicago, the dissent stated.

"From my point of view," Young wrote, "enough competition, if not more than enough, potentially came into existence notwithstanding the limitations contained in the award of the direct route services to United and TWA." For the Board to certificate yet a fourth carrier" (PCA), he added, ". . . appeals to me as going well beyond the needs of public interest and convenience." He pointed out that PCA's authorization had no restrictions whatsoever.

## SAS Joint-Operation Gets CAB Pre-Hearing

Scandinavian Airlines System (SAS) is a joint operating company made up of Danish Airlines (DDL), Norwegian Airlines (DNL) and Swedish Intercontinental Airlines (SILA). It flies into the U. S. on the basis of CAB-issued foreign air carrier permits. (DNL, the Norwegian company, doesn't have its permit yet, but expects to get it soon.)

Last fortnight lawyers representing SAS and the Board sat down at a prehearing conference to square the joint operation with CAB. SAS' idea was to extend the individual airlines' permits to allow the joint operations.

Two of the Board's lawyers, however, thought differently. They wanted to know why SAS hadn't applied for a permit in its own name. Patiently, Tore Nilert, SAS' North American v.p., and Hamilton O. Hale, counsel for the System, explained that SAS wasn't a corporation and therefore had no legal standing. Nilert said that to incorporate SAS in any one of the Scandinavian countries might offend the other two nations involved. To bypass this situation, the joint venture was set up as a consortium, he explained.

The Board lawyers weren't quite certain that the three permits could be amended as SAS proposed, but they agreed to look into the matter further at a formal hearing to be held later before CAB Examiner Herbert K. Bryan.

### Schleit Leaves CAB General Counsel

Philip Schleit, who had been on the Civil Aeronautics Board's General Counsel's staff, has become associated with the Washington law firm of Denning and Cross. In the General Counsel's office, Schleit had been serving as Chief of the Certificates and Permits Section.

## Mexican Line Asks CAB Lift Three Trips Per Week Limit

Back in 1941, when Compania Mexicana de Aviacion (CMA) got its "grandfather" foreign air carrier permit to fly between Mexico City and Los Angeles, it was operating only three schedules a week. Because the Civil Aeronautics Act did not allow CAB to issue any grandfather permits which varied from an existing operation, a three-a-week schedule limit was written into CMA's permit. The Board said, however, that this limitation wouldn't become effective until another airline—U. S. or foreign—was allowed to fly the same route.

In the recent Latin American decision, Western Air Lines was given a Los Angeles-Mexico City route. CMA's restriction, therefore, came into force, although it is allowed to continue flying as many schedules as it wishes until Western gets Mexican government approval for its operation.

Last fortnight, CMA appeared before the Board to ask that the limit be lifted. Examiner Richard A. Walsh, who is in charge of the case, said that a hearing would probably be held on November 18.

## FEATI Asks For Pacific Route From Philippines to Oakland

Far Eastern Air Transport, Inc. (FEATI) of Manila, Philippine Islands, applied to the Civil Aeronautics Board for a foreign air carrier permit to authorize scheduled mail, passenger and property service between Manila, P. I., and Oakland and/or Los Angeles, Calif., via Guam, Kwajalein, Johnston and Honolulu, T. H. (Docket 2570).

The application states that FEATI, a Philippine corporation, now operates scheduled service between Manila and Hong Kong, Shanghai, and Bangkok, Siam. Officers of the company are listed as Eugenio Lopez, pres. and director; Salvador Araneta, v.p. and director; and Antonio Zulueta, treas.

## Caribbean-Atlantic Files For Entire Caribbean Extensions

Caribbean-Atlantic Airlines of San Juan, Puerto Rico, wants to expand its operation to cover the entire Caribbean area. Its application for a series of far flung routes touching Mexico, the Caribbean islands and the north coast of South America was the subject of a prehearing conference before CAB Examiner James S. Keith.

Hubert A. Schneider, attorney for the airline, asked that the hearing on the application be held in San Juan to allow company officials to testify. He said that economic and statistical exhibits to prove the need for the new routes were being prepared by two consulting firms.

## AAL Tries Again To Enter San Francisco From East

American Airlines is continuing its struggle to get into San Francisco from the east. Last fortnight it filed another petition to the CAB asking to have its Route 4 extended into the California city.

The new petition suggested that CAB grant the extension in such a way as to keep AAL from hauling local business between Los Angeles and San Francisco.





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# CAB Proceedings

(A Summary of Applications Filed, and Future Actions of the Civil Aeronautics Board.)

## Calendar:

Nov. 2—Rebuttal exhibits in the Air Freight Case due. (Docket 810 et al.) Postponed from Oct. 19.  
Nov. 4—Hearing on the application of Royal Dutch Air Lines (KLM) for authority to serve Ciudad Trujillo, D. R., on its Curacao-Miami route. (Docket 2348). Examiner Barron Fredricks.  
Nov. 4—Date for filing briefs in the Kansas City-Memphis-Florida Case. (Docket 1051 et al.) Postponed from Oct. 21.  
Nov. 13—Hearing in the Air Freight Case. (Docket 810 et al.) Examiners R. Vernon Radcliffe and William F. Cusick. Postponed from Oct. 28. Hotel Texas, Fort Worth, Texas.  
Nov. 18—Briefs due in the Great Lakes Area Case. (Docket 535 et al.) Postponed from Oct. 30.  
Nov. 20—Hearing on the U. S. Lines-Pan American American Airways General Agency Agreement Case. (Docket 2492). Tentative.

## Applications:

**Air Dispatch, Inc.**, 1015 Union Central Building, Cincinnati, Ohio, for a certificate or exemption order authorizing air transportation as a freight forwarder over non-scheduled international lines. (Docket 2546)  
**Air Dispatch, Inc.**, 1015 Union Central Building, Cincinnati, Ohio, for a certificate or extension order authorizing air transportation as a freight forwarder over scheduled international lines. (Docket 2545)  
**Air Express International Agency, Inc.**, 40 Exchange Place, New York 5, N. Y., for a permanent and/or temporary certificate authorizing air transportation as a freight forwarder over non-scheduled international lines. (Docket 2556)  
**Air Express International Agency, Inc.**, 40 Exchange Place, New York 5, N. Y., for a permanent and/or temporary certificate authorizing air transportation as a freight forwarder over scheduled domestic lines. (Docket 2554)  
**Air Express International Agency, Inc.**, 40 Exchange Place, New York 5, N. Y., for a permanent and/or temporary certificate authorizing air transportation as a freight forwarder over scheduled international lines. (Docket 2555)  
**Air Express International, Inc.**, 40 Exchange Place, New York 5, N. Y., for a permanent and/or temporary certificate authorizing air transportation as a freight forwarder over non-scheduled international lines. (Docket 2553)  
**Air Express International, Inc.**, 40 Exchange Place, New York 5, N. Y., for a permanent and/or temporary certificate authorizing air transportation as a freight forwarder over scheduled international lines. (Docket 2552)  
**Air Express International, Inc.**, 40 Exchange Place, New York 5, N. Y., for a permanent and/or temporary certificate authorizing air transportation as a freight forwarder over non-scheduled domestic lines. (Docket 2551)  
**Peter A. Bernacki**, 222 Spring Garden St., Philadelphia, Pa. for a certificate authorizing air transportation as a freight forwarder over non-scheduled international lines. (Docket 2563)  
**Peter A. Bernacki**, 222 Spring Garden St., Philadelphia, Pa. for a certificate authorizing air transportation as a freight forwarder over scheduled international lines. (Docket 2562)  
**Peter A. Bernacki**, 222 Spring Garden St., Philadelphia, Pa. for a certificate authorizing air transportation as a freight forwarder over non-scheduled domestic lines. (Docket 2561)  
**Cavu Flying Service, Inc.**, c/o J. D. Newell, 4836 Thomas Avenue, South, Minneapolis, Minn., for a temporary certificate authorizing non-scheduled passenger and property service from Minneapolis to all points in the continental U. S. and Canada. (Docket 2549)  
**Challenger Airlines, Inc.**, 520 Felt Building, Salt Lake City, Utah, for a permanent or temporary certificate authorizing scheduled mail, property and passenger service over 424 miles of routes between Salt Lake City, Pocatello, Idaho, and Craig, Colo., via various intermediate points. (Docket 2559)  
**Fast Service Shipping Terminals**, (Jack Borofsky, d. b. a.), 370 West 35th Street, New York, N. Y., for a permanent certificate authorizing air transportation as a freight forwarder over non-scheduled domestic lines. (Docket 2544)  
**Mt. McKinley Airways, Inc.**, Anchorage, Alaska, or Second and Pine Building, Seattle, Wash., for a certificate authorizing scheduled mail, property and passenger service between Anchorage, Alaska and Los Angeles, Calif. via various intermediate points. (Docket 2542)  
**Pennsylvania-Central Airlines Corp.**, for an amendment to its certificate for Route No. 14, to include Martinsburg, W. Va., as an intermediate point between Baltimore and Pittsburgh. (Docket 2558)  
**Viking Air Transport Corp.**, 1096 Airway, Glendale, Calif., for a permanent certificate authorizing non-scheduled mail, property and passenger service over 3604 miles of routes between Miami and San Juan, P. R., and between Newark and San Juan. (Docket 2548)  
**Viking Air Transport Corp.**, 1096 Airway, Glendale, Calif., for a permanent certificate authorizing non-scheduled mail, property and passenger service over 9297 miles of routes between Los Angeles-Newark, San Francisco-Newark, San Diego-Seattle, and Los Angeles-Miami, all via various intermediate points. (Docket 2547)

## All-American Aviation Seeks Pennsylvania 'Copter Service

All American Aviation applied to the Civil Aeronautics Board for certificates to operate helicopter service in the Philadelphia-Camden and Pittsburgh areas. The proposed operation would begin carrying mail only, but passenger and property service is to be added later.

The three routes asked in the Philadelphia area would service the general Post Office, three branch PO's and the Reading Postal Transport Terminal in Philadelphia, plus Camden and 12 communities in Pennsylvania and nine in New Jersey.

At Pittsburgh, the company wants to serve the Pittsburgh Post Office, four PO branches, the local Postal Transport Terminal and 33 nearby towns in Pennsylvania.

## EAL Asks Direct New Orleans-Miami

Eastern Air Lines last fortnight proposed a new direct Miami-New Orleans service in an application filed with CAB. EAL wants a route linking those terminals via Tampa-St. Petersburg, Panama City and Pensacola, Fla., and Mobile, Ala. (Docket 2578). Its application suggested that the service proposed be authorized either as (1) an entirely new route; (2) as an extension of the Miami-Tampa leg of EAL's present Route 40; or (3) as an extension of the New Orleans-Mobile segment of Eastern's Route 5. The airline also asked to add Gainesville, Ocala, and Tampa-St. Petersburg as new stops on its Route 6 between Jacksonville and Miami.

## Air Freight Hearing in Fort Worth

Fort Worth, Texas, has been designated by CAB as the place for hearing the Air Freight Case, Docket 810 et al. Hearings will open in the Hotel Texas on November 13. William F. Cusick and R. Vernon Radcliffe are the examiners assigned to the case. Albert Grisard will act as Public Counsel.

## PCA-Northeast Merger Board Delayed

Oral argument in the Pennsylvania-Central Airlines-Northeast Airlines Merger Case (Docket 2168) was postponed indefinitely by CAB's Chief Examiner Francis W. Brown. Washington's hotel strike was given as the reason for delaying the argument, which was scheduled to begin October 22.

SUMMARY OF U. S. DOMESTIC AIR TRANSPORT OPERATIONS FOR July, 1946  
Compiled by American Aviation Publications from Official C.A.B. Data.

TRAFFIC  
STATISTICS

AIRLINE	REVENUE	PASSENGERS	REVENUE	PASSENGERS	AVAILABLE SEAT	PASSENGER LOAD FACTOR	MAIL TON-MILES	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES	RET. TRAFFIC	AVAILABLE TON-MILES	% AVAILABLE	REVENUE	SCHEDULED	% SCHEDULED	TOTAL PLANES
FLYING	PLANE-MILES	MILES	FLYING	MILES	FLYING	FLYING	FLYING	FLYING	FLYING	FLYING	FLYING	FLYING	FLYING	FLYING	FLYING	FLYING	FLYING
All American	225,478	115,136,618	139,183,367	82.6%	2,861	1,370	4,232	20,791	20.4%	161,950	164,592	98.4%	13				
American	54,759	20,575,407	26,663,682	77.2%	483,734	313,497	707,962	12,834,220	19,682,844	66.2%	5,467,905	5,349,245	98.2%	139			
Boeing	4,120	284,124	603,936	47.0%	51,371	43,315	6,717	2,175,948	3,013,386	73.6%	1,038,117	1,015,816	99.9%	24			
C & S	36,016	13,830,038	21,533,796	64.2%	27,787	41,443	169	23,794	63,425	39.4%	28,553	28,512	99.7%	3			
Colonial	16,814	4,830,773	6,272,752	76.9%	7,523	4,634	4,463,571	2,904,786	33.5%	793,954	791,717	99.2%	18				
Continental	21,725	8,016,558	11,364,827	70.5%	14,664	6,358	4,463,571	2,904,786	33.5%	793,954	791,717	99.2%	18				
Delta	49,527	20,116,473	29,695,829	67.7%	55,215	37,885	2,055,156	4,396,005	52.1%	1,065,822	1,090,921	97.3%	25				
Eastern	136,959	67,586,997	86,939,796	77.7%	220,096	247,182	20,406	7,350,382	10,183,945	73.9%	3,529,086	3,352,425	99.2%	76			
Hawaiian	24,109	3,351,625	3,758,214	89.2%	2,392	9,626	34,829	340,840	491,215	69.9%	181,496	119,371	100.0%	8			
Inland	8,653	2,288,094	3,512,959	65.1%	4,517	1,975	237,125	382,804	63.4%	179,750	179,656	100.0%	13				
NCA	22,496	6,891,513	9,538,390	72.3%	17,101	9,345	720,388	1,050,561	70.2%	465,457	461,574	99.9%	13				
National	28,228	16,640,811	22,098,129	75.3%	56,411	16,496	1,778,770	3,626,751	51.1%	831,939	859,163	96.7%	17				
Northeast	43,318	8,693,209	12,967,390	67.0%	3,913	8,076	738,509	1,261,468	59.9%	406,109	476,622	85.0%	12				
Northwest	56,298	35,500,114	39,630,272	89.1%	133,325	91,398	3,660,315	4,739,341	77.9%	1,557,974	1,596,352	96.0%	35				
PCA	140,781	37,376,902	54,522,730	68.6%	45,290	110,717	608	3,537,748	6,003,365	60.5%	1,673,209	1,668,700	99.8%	52			
Pioneer (Resair)	1,761	508,084	927,558	54.6%	1,493	514	46,715	70,949	70.5%	103,062	102,728	100.0%	8				
TWA	97,079	80,213,299	95,060,943	84.4%	440,506	323,850	239,936	8,717,279	12,309,909	74.6%	4,328,792	4,354,334	98.4%	89			
United	180,693	108,605,064	125,096,081	86.8%	698,826	373,305	262,643	11,683,006	18,392,437	64.7%	5,028,638	4,957,516	99.3%	103			
Western	47,529	19,377,364	24,237,084	79.9%	43,299	34,426	19,142	2,049,867	3,027,110	68.5%	738,944	728,319	99.7%	24			
TOTALS	1,193,939	569,875,067	713,807,797	79.8%	2,310,457	1,676,385	1,299,051	60,790,913	93,527,625	66.8%	28,437,283	28,159,898	98.2%	703			
Eastern	133,704	67,276,035	83,894,950	80.2%	Eastern's Traffic Statistics for June, 1946										99.5%	76	



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We call it "Packaged Runway Lighting" because it comes to you complete—fixtures, cones, lenses, cable, insulating transformers, lamps, constant current regulator.

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## P. O. Dept. Intervenes In PAA Domestic Case

The Post Office Department showed up as a last-minute intervener in the Pan American Airways' domestic routes case. Its petition to intervene was filed over the signature of Second Assistant Postmaster General Gael Sullivan a scant two weeks before hearings were scheduled to begin on October 30.

In an official release, the Post Office said it wanted to present facts and figures to help CAB in reaching a decision on the question of domestic routes for Pan American. Department officials said they were not taking any position on PAA's proposal to link its U. S. terminals with cross-country routes.

◆ Meanwhile, it was learned that PAA planned to file rebuttal exhibits which were said to disclose that Charles A. Rheinstrom, New York aviation consultant and former vice-president-sales of American Airlines would appear as a PAA witness. Rheinstrom's consulting firm prepared some of the economic exhibits Pan American will use as evidence.

A growing list of interveners included (as this issue of AMERICAN AVIATION went to press): American Airlines, Braniff, Chicago and Southern, Delta, Eastern, National, Northwest, PCA, TWA, United, Western and Colonial Airlines; the Orleans Airport Commission, and the Port of New York Authority. Other cities planning to appear included Chicago, Detroit, Houston, Miami, Miami Beach, Philadelphia, and the Chambers of Commerce of Baltimore, Houston, Philadelphia, Washington, St. Louis and Los Angeles.

## Insurance In A Mechanical Age

Insuregraphs, machines which give air travellers a \$5000 insurance policy in about 40 seconds for a quarter placed in a slot, have been installed on an experimental basis in New York's 42nd St. terminal, and another five are to be placed at LaGuardia Field.

The contracts provide "indemnity for loss of life, limb or sight by accidental bodily injury while in transit as a passenger on specified airlines and on other specified conveyance or while waiting at any airport in transit, or due to exposure in transit. They protect the holder for seven days, and can be taken out to the amount of \$25,000, at 25c per \$5000.

Invented by Ralph W. Brown, Columbus, and Ernest H. Woods, Birmingham, Ala., the machine stamps the policy with time and date, while the purchasers fill in flight departure time and destination points, the beneficiary, his own name, through the insuregraph's window. He receives the original, while the machine retains a duplicate.

## CAB Assigns Colonial, TWA Mail Rates For New Routes

Colonial Airlines and Transcontinental & Western Air got new mail rates from the Civil Aeronautics Board. For TWA's international system, the Board set a tentative rate of 75 cents per ton mile. For Colonial's New York-Montreal-Ottawa Route 72-72-F, the new rate is 21.61 cents per airplane mile.

The TWA international rate, the Board said, is only tentative. The rate case will remain open while additional operating data and more adequate experience are being collected. A final rate will then be set to be retroactive to February 5, 1946, the date TWA inaugurated international service.

## Northwest Announces Profit During First Half of 1946

Northwest Airlines derived a net profit of \$242,631 off a gross revenue of \$8,323,784 for the first six months of 1946, Croll Hunter, president of the company, has reported to stockholders. Hunter said that Northwest's action to amortize its investment in DC-4 type airplanes in two instead of four years had affected the current profit, adding, however, that use of the four-engined equipment had enhanced the company's revenues.

◆ Eastern Airlines has announced a semi-annual dividend of 25 cents a share for stockholders of record November 21. The dividend payable December 16th would be a dollar had not the airline stock been split four for one on May 1, 1946. The last dividend of 25 cents a share was paid June 28.

## ATA Board Meeting to Precede December Membership Gathering

Members of the Board of Directors of the Air Transport Association have been notified that the Board will meet Dec. 3 in Washington, prior to the two-day annual meeting of the membership on Dec. 4 and 5. Department heads have been asked to submit reports of the year's work and information on their prospective programs for 1947. In addition to the annual election of officers, the membership on Dec. 4-5 will adopt the 1947 budget.

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Lockheed: Lodestars, Hudsons, Electras

Boeing: 247-Ds

Beechcraft: Commercial Model 18s,

Military AT-11s, AT-7s

Sikorsky: S-43s

## ENGINES AVAILABLE

Pratt & Whitney: R-2800s, R-2000s, R-1830s, R-1340 and R-985 all series.

Wright: R-1820, R-975, R-760 all series.

Jacobs: 300—285—245—225 h.p.

Lycoming: 300—280—260—245 h.p.

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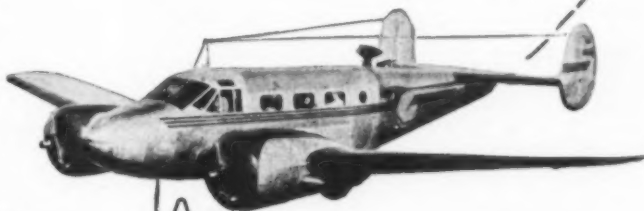
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We are prepared with facts and figures to help you appraise company-owned air transportation in the light of your own transportation needs. We welcome the opportunity to demonstrate to you the new Beechcraft Model 18. No obligation, of course. Our distributors are located in key cities across the U.S.A. Beech Aircraft Corporation, Wichita, Kansas, U.S.A.



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WHEN YOU FLY A BEECHCRAFT



CORPORATION  
WICHITA, KANSAS, U.S.A.

# Auxiliary Powered Glider Goes Into Production in California

**"Dragonfly" Has Tricycle Gear, Bubble Canopy, Dual Controls**

COMMERCIAL production of the country's first auxiliary powered glider has been started by the Nelson Aircraft Corporation in San Fernando, Calif., following licensing of the craft by the Civil Aeronautics Administration.

In certificating the ship as "a glider with auxiliary power," the CAA established a new aircraft category, Ted Nelson, president of the company, disclosed in announcing the completion of the flight engineering tests.

Called the "Dragonfly," the powered glider represents a refined development of the "Bumblebee" designed by William Hawley Bowlus.

Three ships already have been built for exhibition and demonstration purposes, but a number of additional refinements, including greater weight and horsepower, were incorporated into the craft during the period of the CAA tests. Nelson also said the ship has a new, specially designed fuselage molded by Harold Wilson, the sculptor.

Because of the greater horsepower and new refinements plus rising labor and material costs, the "Dragonfly" will sell in the \$2,500-\$3,000 price instead of the \$2,000 price originally planned for the "Bumblebee."

Nelson said the company has started planning a series of flights to establish the first national records in the auxiliary powered glider division and that one of the "three gallon" trips would be a non-stop flight between two cities, such as Los Angeles and San Francisco.

The "Dragonfly" is powered with an auxiliary 2 cycle 4 cylinder magnesium engine developing 25 hp at 3900 rpm and weighing less than 50 pounds. Its three-gallon gas tank permits more than an hour's intermittent cruising at 65 mph.

The glider has a tricycle retractable landing gear, a bubble canopy, dual controls for side-by-side pilots, dual boom extending from the fuselage and supporting the tail surfaces, and detachable wings. Rate of climb is 240 feet per minute for the first minute and sinking speed is 4.8 feet per second. Gliding ratio is 18 to 1. Stalling speed is 38 mph. Specifications are:

Wing span, 47 ft. 4 in.; overall height, 6 ft. 10 in.; overall length, 20 ft.; wing area, 169.3 sq. ft.; aspect ratio, 13.25; gross weight, 935 lbs.; empty weight, 550 lbs.; wing loading, 5.50 lbs. per sq. ft.; area horizontal tail, 23.5 sq. ft.; area vertical tail, 18.5 sq. ft.; area ailerons, 24.2 sq. ft..

## Martin Designs New Navy Bomber

The Navy has developed a new type long range reconnaissance patrol plane, the XP4M-1, built by the Martin Aircraft Co. in conjunction with the Bureau of Aeronautics. Producing a speed in the fighter and attack aircraft class, the plane is powered by both reciprocating and turbo-jet engines, one of each being enclosed in the same nacells.

## Engine Installation Made On Hughes' Huge Seaplane

Howard Hughes' largest venture, the gargantuan flying boat now nearing completion in Long Beach Harbor, has been fitted with its eight engines. The total 24,000 horsepower is enough to generate electricity for a city of 36,000.

Water-taxiing tests for the mammoth seaplane, due to start soon, will continue for many months before the initial flight test. For the present, final construction on the almost entirely wood flying boat goes on at the dry dock at Terminal Island.

## Douglas Buys Surplus Plant

Douglas Aircraft Co. has purchased for \$3,667,105 cash a government owned surplus aircraft plant in Santa Monica, Calif., originally costing the government \$7,329,000. Operated by Douglas during the war, the plant consists of seven buildings, and contains 332,000 sq. ft. of floor space.

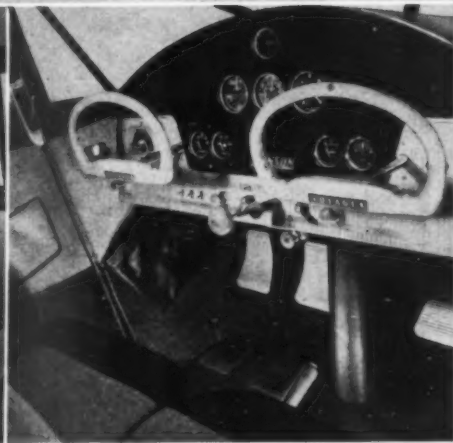
## Foreign Carriers To Buy 43 U. S. Aircraft

Two west coast aircraft companies, Lockheed and Consolidated-Vultee, have announced the recent sale of 14 and 12 transports, respectively, to foreign air carriers.

New purchasers of Lockheed's four engine Constellation are Aer Rianta Teoranta of Dublin, Eire, and Qantas Empire Airways of Australia. Royal Dutch Airlines (KLM) has ordered seven planes to bring its fleet of Constellations to 11, KLM has also ordered 12 twin-engined Convairst to be based at Amsterdam and to serve major European capitals.

SAS has also ordered 17 Douglas DC-6's, one of the largest single orders made by European airline, according to a report from Sweden. Approximately 10 of the planes will be used by ABA Swedish Air Lines, the remainder going into service on the three SAS company members' lines.

Swedish Intercontinental Airlines (SILA) has sold two of the four Boeing Stratocruisers it has ordered from Boeing Aircraft Co. to its associates in the Scandinavian Airline System (SAS)—Danish Air Lines (DDL) and Norwegian Air Lines (DNL).



## Stinson's 1947 Model

Stinson Division of Consolidated Vultee Aircraft Corp., will produce two models of the four-place 150 for 1947. One is a deluxe passenger plane, the other a flying station wagon. The ships have the same specifications and performance characteristics. Photo at lower left shows interior appointments of the passenger plane, while photo at right shows the cockpit arrangement. Both models have gross weights of 2230 pounds, with an empty weight of 1224 pounds. Useful load is 1006 pounds. The aircraft are powered with six-cylinder, 150 hp., horizontally opposed Franklin 335 engines and have a range of 500 miles. Maximum speed is 133 mph., and cruising speed 125 mph. Special features of the cabin include air conditioners, built-in radio speaker, and foam rubber cushions in the seats. Exterior colors are offered in a choice of red, green or blue.





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**DOUGLAS DC-4 AIRLINERS**—Now, TACA, as still another step in improving passenger service, has purchased a new fleet of fast, dependable Douglas DC-4 airliners. Cruising at 225 miles an hour to and from Latin America, they will provide every passenger luxury . . . and with 44 seats (instead of the capacity sixty) the very important luxury of spaciousness.

*J. Helmer*  
PRESIDENT

## TACA AIRWAYS System

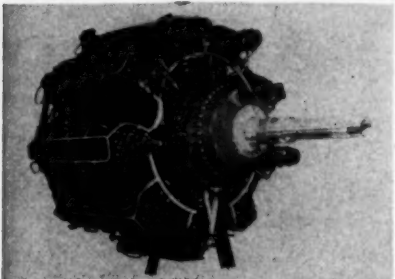


Brazil • British Honduras • Colombia • Costa Rica • Cuba • Dominican Republic • Ecuador • El Salvador • Guatemala • Honduras • Mexico • Nicaragua • Panama • Peru • Venezuela

## Lycoming Developing World's Most Powerful Reciprocating Engine

From the laboratory of the Lycoming division of The Aircraft Corp. has come the AAF requested XR-7755 liquid cooled, radial engine which has proved to be the most powerful reciprocating aircraft powerplant yet developed.

Displacing 7775 cu. in. and equipped for either carburetion or fuel injection, the powerful engine is capable of 4000 hp. on 2300 rpm at cruising or 5000 hp on 2600 rpm at takeoff. The engine is built with a single crankshaft operating off 36 cylinders, four rows of nine each. Operating at maximum speed and power the new AAF powerplant consumes 580 gallons of gasoline per hour. It is 10' x 5', weighs 6050 lbs.



✦ Propeller drive is gained through a hydraulic controlled two speed dual rotation reduction gear. This innovation plus that of ignition timing and camshaft adjustments makes it possible to operate the engine at lower fuel consumption rate than that of contemporary engines at equivalent power. A single speed, single stage supercharger is employed.

Development on the engine was begun by Lycoming in 1943. The idea of developing a powerplant that would have a large displacement to horsepower ratio in order to gain economy through high compression ratio and still provide low boost for ground operation has been the guiding factor on the XR-7755's creation.

The engine is still on the test block at Lycoming's Newport laboratory and AAF authorities estimate one to two years before production starts. The Army already has a contract with Lycoming for delivery of a number of the engines.

### Cameron Develops Powerplant Of High HP Ratio for Lightplane

A new powerplant for lightplanes has been developed by the Cameron Aero Engine Corp., of Reading, Pa. Designated the Cameron "A," the four-cylinder in-line air-cooled engine will develop 125 hp at 2500 rpm and 110 hp at cruising rpm (2200).

Installation of the "4" may be made on either single or twin-engined planes in either upright or inverted positions. Total dry weight of the engine will be approximately 200 pounds, a ratio of 1½ lbs. per hp, which is lower than that of any other engine in its power class, the company said.

Features of the engine include fuel injection system; internal cooling of cylinders; magnesium alloy crankcase; integral cylinder and head with machined cooling fins for reduced weight and four groove aluminum alloy pistons.

### AAL Officials Fly In Rainbow

Four officials of American Airlines, which has purchased 20 Republic Rainbow transport planes, were the first purchasers to ride in the passenger-cargo plane. C. R. Smith, chairman of the board, Ralph Damon, president, William Littlewood, vice-president-in-charge of engineering and James H. Douglas, Jr., airline counsel, took the demonstration flight October 17 at the Republic Corporation Plant, Farmingdale, L. I.

## Aircraft Deliveries In August Total 4,790

Shipments of civil aircraft and principal types of military planes by U. S. manufacturers totaled 4,790 during August, 39% over the July figure of 3,452, according to information prepared by the Bureau of the Census and Civil Aeronautics Administration. The August shipments, valued at \$22,403,502, brought the cumulative 1946 delivery total to 22,159 of which 21,382 were civil craft. Not included in these figures are experimental military planes, pilotless aircraft, and helicopters.

Unfilled orders on Aug. 31 amounted to \$49,604 airplanes valued at \$1,121,016,501, a 3% decrease from the 51,018 planes on order the previous month.

✦ Of the 4,683 planes shipped to other than U. S. military customers in August, 4,189 or 89% were single-engined, two-place planes. However, the 31,504 two-place craft on order as of Aug. 31 represented only 67% of the total civil backlog.

A total of 156,261 persons were employed in complete aircraft plants during August, 5% more than the 149,313 for July. The August shipment data were submitted by 56 plants manufacturing complete aircraft, representing all firms then active in the industry.

### Bendix Scraps Plans for Entering Production Field

Bendix Aviation Corp. has announced cancellation of its experimental program to design and produce personal planes.

The cancellation was accredited to Bendix's desire to remain as a partner with aviation industry rather than a competitor. In line with this Bendix will continue to produce component parts for airplane production.

Decision to drop the personal plane production idea came after more than two years of research and experiment which had resulted in two prototypes of Bendix design.

### Fairchild Resigns From Engine Corp.

Sherman M. Fairchild has resigned his position as chairman of the board and director of Fairchild Engine and Airplane Corp. A prominent figure in the aviation industry, he is chairman of the board of Fairchild Camera and Instrument Corp., president of Fairchild Aerial Surveys, and a board member of Pan American Airways and International Business Machines. Fairchild states he has no immediate plans for other activity in the airplane and engine field.

## Manufacturing Personnel



Wood

Sather

Endlekofer

Lyle A. Wood, assistant chief engineer for Boeing Aircraft Company, was recently awarded a service pin for his 20 years with the company.

Phyllis K. Sather of Boeing's aerodynamics unit is the only woman graduate engineer with the company's Seattle plant. A 1946 graduate of Univ. of Minnesota, she has been with Boeing two months.

A. H. Endlekofer has been named manager of the Los Angeles branch and factory of Air Associates, Inc., Teterboro, N. J.

Lt. R. A. Penrose, USN, has relieved Lt. S. F. Patyak, recently discharged, as Navy Bureau of Aeronautics representative at Boeing's Seattle plant. He will act in the Navy's interest in the construction of the XP8B-1, new experimental Boeing designed fighter-bomber.

James S. Lee has been named European representative for United Aircraft Corp. He will leave U. S. about Nov. 1 to select a location for European headquarters. Lee has been associated with Pratt & Whitney for the past nine years.

William L. Gore, one of the Navy's pioneer technicians in the use of JATO (jet assisted take-off) has been appointed eastern representative for Aerojet Engineering Corp., with headquarters at 1026 17th St., Washington, D. C.

John C. Goodell, has joined the sales department of Edo Aircraft Corp., College Point, N. Y.

Leighton M. Harvey has been appointed sales engineer for the metal products division of the Ryan Aeronautical Co., with headquarters in Washington, D. C.

James S. Lee, formerly with Curtiss-Wright Aircraft division, has been named European representative for United Aircraft Corp. Thomas A. DeMarco, formerly associated with United, has been named executive assistant to John J. Bergen, chairman of the board of Gar Wood Industries, Inc.

Glenn L. Martin, president of Glenn L. Martin Co., has named the following plant management appointments for the new \$41,500,000 chemical plant near Painesville, Ohio: Henry S. Curtis, manager; Emil W. Millen, supervisor of production; Stanley S. Gregory, plant accountant and office manager; and Dr. William J. Lightfoot, chief engineer of the plastics and chemicals division.

Beckwith Havens, pioneer pilot, is now sales director of the Embry-Riddle Co., of Miami, with offices in Miami and New York.

R. B. Kenty is now vice-president in charge of domestic sales for Air Associates, Inc.

Herbert H. Munsey, patent counsel for Bell Aircraft Corp. for the past six years, has been named chairman of the patent advisory committee of the Manufacturers' Aircraft Association, succeeding G. T. Gerlack of Consolidated Vultee Corp.

Chalmers H. (Slick) Goodlin, Bell Aircraft test pilot, has been nominated to make first power flights in the XS-1 this fall.



Kenty

Munsey

Goodlin

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New Bellanca "Cruisair" . . . 150 H.P., 4-place model. Factory-equipped with an Aeromatic, it does 169 M.P.H.

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**For Your Customers . . .** it means up to 33% shorter take-off runs . . . up to 25% faster climbing . . . top cruising performance on minimum fuel consumption . . . long, flat glides for safe landing with a quick pick-up if the pilot overshoots his field. All without any extra

controls or gadgets. The Aeromatic is the *only* fully automatic variable pitch propeller. It varies its own pitch in response to natural forces . . . utilizes full engine power at rated speeds . . . insures maximum performance under all flight conditions.

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*Air-controlled automatic propeller*



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## Northrup Loss for '46 In Contrast to Profit During Preceding Year

A net loss of \$25,261 in contrast to the previous year's profit of \$747,501 has been listed by Northrup Aircraft, Inc., of Hawthorne, Calif., for the fiscal year ending July 31, 1946. These figures were submitted to stockholders in a letter from LaMotte T. Cohu general manager and chairman of the board of Northrup, which also stated that sales over the loss period amounted to little more than a fourth as much as the fiscal '45 year had grossed.

Besides the slack in sales, Cohu attributed the loss to development of subsidiaries outside the aircraft manufacturing industry. He added, however, that these subsidiaries should add stability to the company's earning power in the future.

✦ **Curtiss-Wright Corp.** Stockholders of outstanding Class "A" stock were authorized a 50 cent per share dividend on October 24. All eleven directors of the company were reelected at a recent stockholders meeting in Wilmington, Del., where G. W. Vaughn, president, told the corporation members of the \$93,000,000 backlog of orders Curtiss-Wright now has. Vaughn explained that the company had had to expand and diversify its research and development program to meet the constantly changing demands resulting from pilotless aircraft and rocket propulsion.

✦ **Cessna Aircraft Co.** has declared a dividend of 15 cents per share on the outstanding 700,000 shares, payable Dec. 10 to stockholders of record of Nov. 27.

✦ **United Aircraft Products Inc.**, of Dayton, has acquired the plant and business of Allen Tool Co. of Springfield, Ohio. It will be operated as a division of United.

✦ **Kellett Aircraft Corp.**, North Wales, Pa., has filed a petition in Federal District Court at Philadelphia asking permission to reorganize under Chapter 10 of the Chandler Bankruptcy Act, President W. Wallace Kellett said the company is solvent but lacks working capital.

## Financial Comment

by  
**I. W. Burnham, II**  
of  
**Burnham & Company**  
Members of New York Stock Exchange

The shift of the security market from a bull to a bear trend has accentuated the downward course which had already existed in airline and aircraft manufacturing stocks. Ever since December 1945, airline securities have been moving downward while the manufacturing stocks started down in March 1946. The averages of these groups began to saucer out and even appeared ready for an upward move in late July. However, the general market began to show signs of weakness in July and August and the September break penetrated to all groups. Bargain-hunters are now taking a good look at airline and aircraft stocks, and those who buy with discrimination may be well rewarded, if they have patience. It is an axiom of long standing that few stocks buck the general trend of a bear market until the greater part of the liquidating phase is over.

Although this column pointed out the dangers of buying aircraft shares because of net quick assets in excess of market value, that warning was issued last March at materially higher levels. At that time, other important factors such as future earnings, orders, et cetera, were obscure. Now, the situation is very much different. The shares of many manufacturers are available at nearly one-half of their net quick asset value, and the outlook for operations and earnings is much clearer. To name a few, Boeing, Lockheed, Consolidated-Vultee, Bell and Beech, are examples of manufacturing concerns which appear to be entering a new phase. Altogether, earnings for the group will be very meager in 1946. Present indications for 1947 are that the great majority should be substantially in the black. Barring sizable wage increases or lengthy interruptions to production due to strikes or shortages, the aircraft manufacturing shares should report considerably higher earnings in 1947.

Airline shares are very depressed in price. The majority are now well below their 1946 highs—generally 50% and in some cases as much as 70%. Although it now appears that Eastern, National, United, and a few others will be in the black for 1946, the great majority will be well in the red. Despite the fact that the sizable deficits incurred during the

change-over period are now growing smaller, and in some cases are being turned into profits, load factors are turning down and the series of recent accidents are causing a considerable amount of distress to prospective air travelers. The concern of airline investors seems justified and the writer suggests that the situation would be considerably improved if the following steps were taken:

1. **By the Civil Aeronautics Board**  
(a) Give immediate aid in the form of increased mail rates to marginal lines now operating substantially in the red.  
(b) Take immediate action to establish a program of regulation for the new fixed base and cargo carriers.  
(c) Insist immediately that some standard form of instrument approach and let-down be generally adopted.

2. **By the Airlines**  
(a) Raise passenger fares at once. Passenger fares should go back to 5c per mile. The cost of everything has gone up—wages, food, engines, planes, fuel, et cetera, and so have competitors' rates. A small rise in fares will not drive away customers.  
(b) Ask for an increase in mail rates at once.  
(c) Eliminate free meals. The promise of meals without charge used to be necessary on the airlines, but isn't any more. Charge for meals, but at reasonable cost.  
(d) Check personnel carefully. The need is for more and better personnel in traffic departments and in the shops, not in the front office.  
(e) Watch the accident record. The newspapers still play up airline accidents and play down those of the railroads. The best way to cut down on accidents is to keep planes on the ground whenever there is any doubt as to weather conditions.

## Lockheed Sustains Loss During 1946 First Half

Lockheed Aircraft Corp., in a letter from President Robert E. Gross to the shareholders, announced an operating loss of \$424,502 on sales amounting to \$69,199,747 for the first six months of 1946. Carry-back credit was not considered in computing the loss, Gross said, because the corporation anticipates no loss for the full year ending Dec. 31, 1946.

Grounding of the Constellation by government order in July and inability to deliver more than 150 of the many P-80 pursuit planes which had been completed for some time were the two reasons listed as cause for the unexpected loss. The loss figure reflects costs incurred during the period of modifications made necessary by the grounding order. Gross stated a profit, including taxes, of \$1,800,000 would have been realized had the P-80's been delivered on schedule.

Critical material shortage and strikes in vendors' plants beyond the control of the company had upset operation and would, if aggravated or greatly prolonged, prevent the company from overcoming the first half deficit. Backlog of orders, as of Sept. 30, 1946, totalled \$183,800,000.

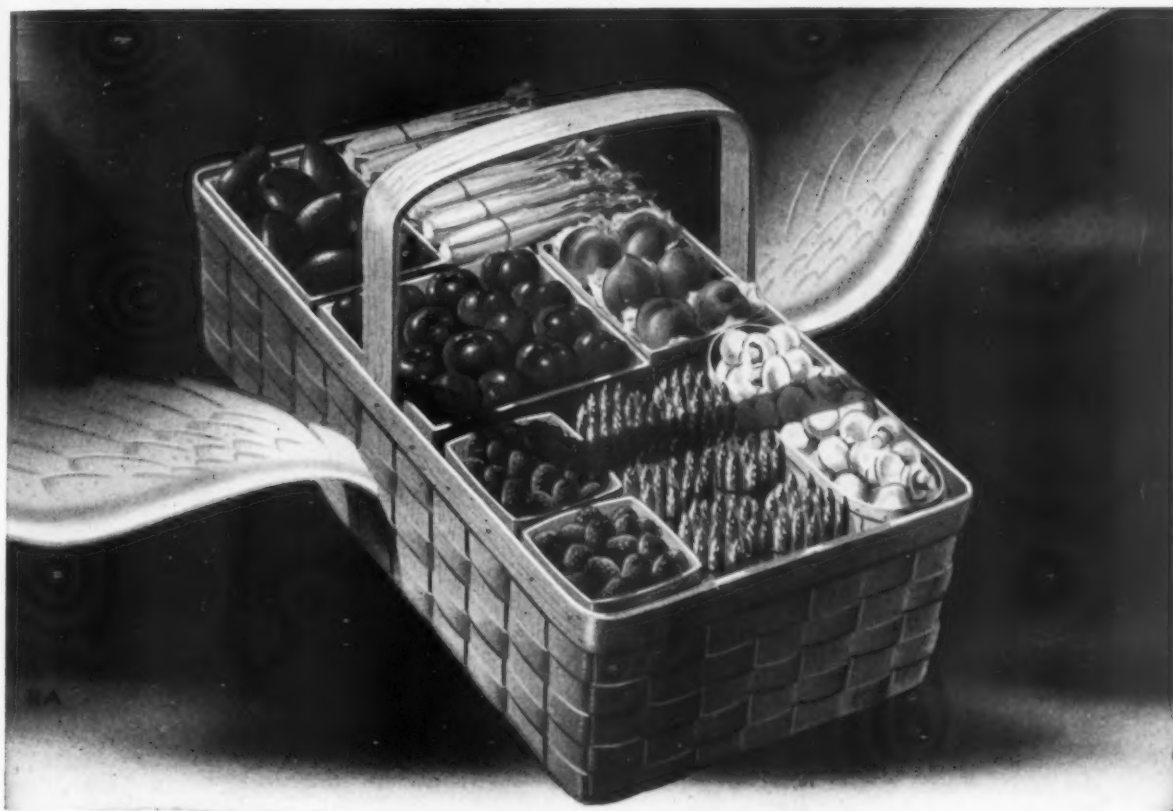
### Republic Registers 100,000 \$50 Shares

In a move of minor growth, Republic Aviation Corp. filed a registration statement with the Securities and Exchange Commission on October 9 covering 100,000 shares of \$50 par value convertible preferred. The general funds of the corporation will absorb the proceeds.

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## Leading Aviation Securities

(Courtesy of Burnham & Co.)

	1946		Range for 6 Days Ended 10-11-46		Range for 6 Days Ended 10-18-46		Two Weeks Net Change	
	High	Low	High	Low	High	Low		

### NEW YORK STOCK EXCHANGE

<b>AIRLINES</b>								
American Airlines	197 1/2	104 1/2	117 1/2	104 1/2	123 1/2	107 1/2	—	1/2
Brant Airways	37 1/2	16	18 1/2	16	19 1/2	17 1/2	—	1/2
Eastern Air Lines	31 1/2	21 1/2	25	22 1/2	25 1/2	22 1/2	—	1/2
National Airlines	34 1/2	17 1/2	19 1/2	17 1/2	20 1/2	18	—	1/2
Northwest Airlines	26 1/2	21 1/2	25 1/2	23 1/2	27 1/2	24 1/2	—	1/2
Pan American Airways	35	27	31	28 1/2	34 1/2	32	—	1/2
Penn.-Central Air.	45 1/2	23 1/2	24	20	25 1/2	22 1/2	—	1/2
Trans. & Western Air	71	26 1/2	32 1/2	26 1/2	32	28 1/2	—	1/2
United Air Lines	31 1/2	25 1/2	29 1/2	25 1/2	30	26	—	1/2
Western Air Lines	35	13	16 1/2	13	16 1/2	14 1/2	—	1/2

### MANUFACTURERS ETC.

Aviation Corp.	143 1/2	81 1/2	71 1/2	61 1/2	73 1/2	67 1/2	—	1/2
Aviation Corp. pf.	82 1/2	46 1/2	48 1/2	46 1/2	49 1/2	47 1/2	—	1/2
Beech Aircraft	307 1/2	12 1/2	13 1/2	12 1/2	16 1/2	15	—	1/2
Bell Aircraft	35 1/2	18 1/2	20 1/2	18 1/2	20 1/2	20	—	1/2
Bendix Aviation	58	31	36	31	34 1/2	32	—	1/2
Boeing	23 1/2	21	24 1/2	21	25	22 1/2	—	1/2
Cons. Vultee	33 1/2	18 1/2	21 1/2	18 1/2	22	20	—	1/2
Continental Motors	24	10	11 1/2	10	12 1/2	10 1/2	—	1/2
Curtiss-Wright	12 1/2	5 1/2	6	5 1/2	6 1/2	5 1/2	—	1/2
Curtiss-Wright "A"	53 1/2	17 1/2	18 1/2	17 1/2	20 1/2	18	—	1/2
Douglas Aircraft	108 1/2	75 1/2	79	75 1/2	80	77	—	1/2
Grumman Airc. Eng.	32 1/2	26	31 1/2	28	30	26 1/2	—	1/2
Lockheed Aircraft	45 1/2	25 1/2	28 1/2	25 1/2	28 1/2	25 1/2	—	1/2
Martin, Glenn L.	28 1/2	15 1/2	19	17 1/2	19	17 1/2	—	1/2
North Am. Aviation	16 1/2	10 1/2	11 1/2	10 1/2	12 1/2	11 1/2	—	1/2
Republic Aviation	24 1/2	11 1/2	13 1/2	11 1/2	13 1/2	12 1/2	—	1/2
Sperry Corp.	40 1/2	20 1/2	22 1/2	20 1/2	23 1/2	21 1/2	—	1/2
United Aircraft	17 1/2	20 1/2	22	20 1/2	22 1/2	20 1/2	—	1/2
Wright Aero.	108	80 1/2	86	80 1/2	86	86	—	1/2

### NEW YORK CURB EXCHANGE

<b>AIRLINES</b>								
Alaska Airlines	12	4 1/2	5 1/2	4 1/2	5 1/2	4 1/2	—	1/2
Colonial Airlines	43	15	18	15 1/2	18 1/2	15 1/2	—	1/2
Northeast Airlines	21 1/2	8 1/2	10 1/2	8 1/2	11 1/2	10	—	1/2
Pan American Air. war.	14	4	4 1/2	4	4 1/2	4 1/2	—	1/2

### MANUFACTURERS, ETC.

Aero Supply "B"	7 1/2	3 1/2	3 1/2	3 1/2	4	3 1/2	—	1/2
Air Associates	23 1/2	12 1/2	13 1/2	12 1/2	13 1/2	12 1/2	—	1/2
Air Investors	3 1/2	3 1/2	3 1/2	3 1/2	4	3 1/2	—	1/2
Air Investors cv. pf.	38	37	37	37	37	37	—	1/2
Airon Mfg.	17 1/2	4 1/2	6 1/2	4 1/2	7	5 1/2	—	1/2
Airon Mfg. pf.	22 1/2	9 1/2	10 1/2	9 1/2	11 1/2	10 1/2	—	1/2
Aro Equip.	27 1/2	12	13 1/2	12	15 1/2	14 1/2	—	1/2
Bellanca Aircraft	9 1/2	3 1/2	4 1/2	3 1/2	4 1/2	4	—	1/2
Breeze Corp.	31 1/2	16 1/2	17 1/2	16 1/2	18 1/2	16 1/2	—	1/2
Brewster Aero.	5 1/2	4	4 1/2	4	4 1/2	4 1/2	—	1/2
Cessna Aircraft	10 1/2	5 1/2	6 1/2	5 1/2	6 1/2	5 1/2	—	1/2
Fairchild C. & A.	17 1/2	10	10 1/2	10	12	10 1/2	—	1/2
Fairchild E. & A.	8 1/2	4 1/2	5	4 1/2	5 1/2	4 1/2	—	1/2
Irving Air Chute	13 1/2	8 1/2	9	8 1/2	9	8 1/2	—	1/2
Menasco Mfg.	8 1/2	3 1/2	4	3 1/2	4 1/2	3 1/2	—	1/2
Northrop Aircraft	15 1/2	8 1/2	11 1/2	8 1/2	11 1/2	10	—	1/2
Piper Aircraft	15 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	—	1/2
Roosevelt Field	9 1/2	5 1/2	6	5 1/2	6	5 1/2	—	1/2
Ryan Aero.	10 1/2	6	6 1/2	6	6 1/2	6	—	1/2
Solar Aircraft	22 1/2	12	13 1/2	12	15 1/2	13 1/2	—	1/2
United Aircraft Prod.	8	6 1/2	8	6 1/2	7 1/2	6 1/2	—	1/2
Waco Aircraft	9 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	—	1/2

### OVER-THE-COUNTER SECURITIES

<b>AIRLINES</b>								
Airborne Cargo Lines	15 1/2	7 1/2	7 1/2	7 1/2	15 1/2	15 1/2	—	1/2
Air Cargo Transport	15 1/2	2	2	2	15 1/2	15 1/2	—	1/2
All American Aviation	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	—	1/2
American Airlines, cv. pf.	78	77	77	77	78 1/2	79 1/2	—	1/2
American Overseas Airlines	12 1/2	12 1/2	12 1/2	12 1/2	11 1/2	12 1/2	—	1/2
Chicago & Southern Air Lines	10 1/2	11	11	11	10 1/2	11	—	1/2
Continental Air Lines	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	11 1/2	—	1/2
Delta Air Lines	20 1/2	30 1/2	30 1/2	30 1/2	30 1/2	32 1/2	—	1/2
Emery Air Freight Corp.	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	4 1/2	—	1/2
Expresso Aero	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	3 1/2	—	1/2
Flamingo Air Services, Inc.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	—	1/2
Flying Freight, Inc.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	—	1/2
Great Circle Airways, Inc.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	—	1/2
Inland Airlines	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	—	1/2
International Airlines, Inc.	2	2 1/2	2 1/2	2 1/2	2 1/2	3	—	1/2
Island Air Lines, Inc.	2	2 1/2	2 1/2	2 1/2	2 1/2	3	—	1/2
Latin American Airways, Inc.	1 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Mid-Continent Air Lines	9	10	10	10	9 1/2	10 1/2	—	1/2
National Skyways Freight Corp.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	—	1/2
Public Flyers, Inc.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	—	1/2
TACA Airways	3 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	—	1/2
Trans Caribbean Air Cargo Corp.	1 1/2	2 1/2	2 1/2	2 1/2	1 1/2	2	—	1/2
U. S. Airlines, Inc.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	—	1/2

### MANUFACTURERS, ETC.

Aeronautical Products	10 1/2	11 1/2	11 1/2	11 1/2	11 1/2	12 1/2	—	1/2
Aircraft & Diesel	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	—	1/2
Airplane & Marine	8	9 1/2	9 1/2	9 1/2	10	10 1/2	—	1/2
Central Airports	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Columbia Aircraft	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Continental Aviation & Eng.	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
General Aviation Equip.	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Gladson Products	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Globe Aircraft	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Harlow Aircraft	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Harvill Corp.	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Interstate Aircraft & Eng.	7 1/2	8 1/2	8 1/2	8 1/2	7	8	—	1/2
Kellett Aircraft	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Lehr, Inc.	3	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	—	1/2
Liberty Aircraft	13 1/2	14 1/2	14 1/2	14 1/2	14 1/2	15 1/2	—	1/2
Luscombe Airplane	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
McDonnell Aircraft Corp.	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
McDonnell Aircraft Corp. pf.	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	—	1/2
Pacific Air motive	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	—	1/2
Pollak Mfg.	12	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	—	1/2
Standard-Thomson Corp.	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	—	1/2
Taylorcraft	1 1/2	2 1/2	2 1/2	2 1/2	2	2 1/2	—	1/2
Timm Aircraft	1 1/2	2 1/2	2 1/2	2 1/2	2	2 1/2	—	1/2



## Operations and Maintenance Review

**Including**

## COMMUNICATIONS—NEW EQUIPMENT—AIRPORTS

# Pan American Schedule Room Nerve Center Of Operations

## Skilled Group Keeps Tab On All Transports In System

**P**AN American Airways' schedule room at Miami is preparing for its busiest winter season in history. Its job is to keep PAA transports flying an average of 100,000 miles a day on schedule over the Latin American division.



Bever

currently are being added to handle growing traffic needs.

◆ **Headed by Morton S. Beyer** the schedule section works around the clock in three eight-hour shifts. Its activities revolve around a huge chart showing each route flown, with scheduled departure times noted beside each station along the way. A battery of telephones and three teletype systems provide an hour-by-hour check on each plane's progress.

These are typical functions of the schedule room on a DC-4 flight from Miami to Rio and return:

♣ **As the ship** reaches each stop en route, an arrival message is sent back by teletype to the schedule room. The messages reach Miami within minutes after the plane lands, regardless of the station's distance from the home base. Similar messages are transmitted for departures.

The arrival and departure times are noted on a log sheet alongside the scheduled times, showing at a glance whether a given trip is on time or behind schedule. If there is delay due to weather, maintenance or engine trouble, Miami so informs all stations to be served by that particular flight.

✦ **Such messages** are handled through an overseas radio station just outside Miami. One teletype in the schedule room is connected directly to this station, which in turn relays messages by radio to flight dispatch centers at New Orleans, Brownsville, Guatemala City, Panama, Caracas, Port of Spain, San Juan, Belem and Rio de Janeiro.

Alongside this machine is another teletype circuit direct to Pan American's central telegraph office in Miami. Duplicate operations messages are sent over this machine and relayed on from central telegraph to PAA traffic, engineering and executive offices advising them of any changes in scheduled operations.

✱ **Another direct** teletype line to the New York schedule room coordinates movements of planes between New York and San Juan and points on down the South American east coast.

The Miami schedule room's responsibilities also include the scheduling of flight crews—pilots, radio operators, stewards and stewardesses. This work is done by three separate groups.

✦ **One group** handles the more than 600 pilots in the Latin American division scheduling them on the routes they are qualified to fly, keeping track of their flying time for the month, and establishing their availability at each of the stop-over points throughout the system. Other groups keep tabs on radio operators, stewards and stewardesses.

Another group, the maintenance planning section, is concerned with the aircraft. It keeps time records on ships, engines and maintenance schedules. DC-4s, for example, must be brought to Miami shops for terminal service after 130 hours of flying.

✦ **This function** must be closely coordinated with the plane scheduling crew so that each plane will be back in Miami—



**Pan American Log Sheet**—Edgar McKee, traffic liaison man in the schedule room at Pan American's Miami base, checks the log sheet which shows up-to-the-minute location of every aircraft in the PAA fleet. On this sheet are noted the arrival and departure times of each station on every route. McKee coordinates the traffic department's needs with the schedule room, advising when extra sections are needed to handle an overflow of passenger traffic.

not in Rio or Panama—when due for maintenance work. The schedule also must be arranged so that work for the maintenance crew is evenly distributed.

Still another group whose work must be coordinated in the scheduling of planes is the time limit control section. It keeps detailed records on every instrument and accessory in the planes, checking for overhaul and replacement.

✦ Also included in the personnel of the schedule room is a liaison man from the traffic department, who provides information on such subjects as extra sections to care for an overflow of passengers; or who determines when a given point can be bypassed or overflown because there are no passengers to be unloaded or taken aboard.

## CAA Allows Transatlantic "Pressure Pattern" Flying

Weather information broadcasts to trans atlantic pilots over CAA radio station WSY in New York now include data to permit "pressure pattern" flying by avoiding or taking advantage of winds and atmospheric conditions. Requested by the meteorological committee of the Air Transport Association, the plan calls for inclusion of wind and pressure data at the end of all in-flight position reports.

Although not yet worked out, efforts are being made to have similar information broadcast from the other side of the Atlantic.

## CAR Air Traffic Rules Distributed by CAB For Airline Comment

Proposed revisions of Part 60 of Civil Air Regulations involving air traffic rules were distributed for industry comment, Oct. 11, by the Safety Bureau of the Civil Aeronautics Board. The revisions were aimed generally at amending U. S. air traffic rules to comply with international standards and procedures approved in Montreal by the Provisional International Civil Aviation Organization (PICAO).

♦ The Safety Bureau indicated that major points involved in the changes were:

1. Division of air traffic rules into three groups, General Flight Rules, Visual Flight Rules, and Instrument Flight Rules. The term "visual" was adopted by PICAO because the word "contact" cannot be interpreted into some foreign languages, and thus has led to ambiguity in interpretation of contact flight rules.

2. Simplification of visibility requirements, with reduction of air traffic control areas from three to two categories, namely, Control Zones and Control Areas.

3. Adoption of rules for operation of aircraft on the surface of water, in view of recent increase in seaplane operations and the apparent need for simple, standard rules-of-the-road for such operations to avoid conflict with other surface craft.

Comment on the proposals was requested by Nov. 1, so that industry views may be included in the early standardization of international air traffic rules.

## AAF After Fast Trucks To Tend Plane Crashes

The Army Air Forces, following exhaustive studies of existing-type fire and crash trucks, has established requirements and made plans for scrapping or modifying all present equipment. Primary purpose is toward faster release of persons trapped in burning wreckage, either

on an airport or in rough terrain away from the field.

Reporting that previous equipment has been found inadequate for cutting into heavy modern planes, the AAF has developed what they call a Forcible Entry Kit which replaces most hand tools with powered equipment. The jeep on which the equipment is mounted carries all necessary tools and equipment for crash and rescue work either alone or in conjunction with heavier fire fighting units.

♦ Another major change in Army requirements calls for much faster trucks and greater mobility over rough ground. Heaviest fire trucks must now be able to travel 5,000 feet from a standing position in 90 seconds, and must do 65 m.p.h. over surfaced runways and at least 35 m.p.h. in mud or sand.

Special fire fighting clothing has been developed to replace asbestos suits with a new protective suit with an outer cover of semi fire resistant cloth and three inner layers of fiber glass, fabric and knitted wool cloth.

## CAB Sounds Call For Flight Recording Sets

Development of two new types of flight recording instruments has been requested under proposed new CAB regulations outlined in a recent draft release.

The more complex of the two requested devices would provide an almost complete record of flight and engine conditions, including altitude, vertical acceleration, airspeed, compass heading, rpm, manifold pressure, fuel flow, cabin pressurization, cabin temperature, plus a series of on-off indicators to show positions or use of flaps, landing gear, auto pilot, propeller and de-icer equipment. The other requested instrument is a two-element device recording altitude and vertical acceleration.

The recordings, to be made on waterproof paper, are intended not only for accident investigations but to provide the airlines a day-to-day record of how its planes are operated on specific flights.

## 30 Hour Check

By DAVID SHAW

From time to time we like to look away from aviation as it appears to us and view it as presented to people who follow aviation in the Sunday supplements. We pick up occasional nerve-shattering evidence that the supplements are taken more seriously by their readers than we are taken by ours, and it behooves us not to let the fiction get away from the fact. So much Buck Rogers stuff is coming along in aviation these days that even the supplement writers don't know what to believe.

For the time being you probably can top any fantastic story that comes along (not counting rocket-ship tales) with a brief description of the Army's "push-button" C-54. To fly it you simply taxi to take-off position, lock the brakes, and push the proper button for your destination. You then open your copy of the Sunday Morning Gazette and proceed to catch up on your aviation reading while the C-54 takes off, retracts wheels and flaps, adjusts power for climb and cruise, picks up the range and the assigned altitude, and proceeds to destination. Then, without disturbing you in the slightest, it picks up the instrument landing system, cuts back throttle, lowers flaps and wheels, lands, and applies the brakes. Whereupon you must put away your paper and, with your own mind and muscles, taxi to the apron and cut the engines. This last little inconvenience is under study.

To accomplish this effortless type of flight the Army has developed what they refer to as an Automatic Flight Controller which works with an A-12 automatic pilot to control the airplane, and a Master Sequence Selector (a name doubtless borrowed from Buck Rogers) which takes care of such variables as direction, distance and altitude.

The push-button C-54 does not yet serve meals or otherwise fill the functions of the hostess, and we think the ALPA had better look into this right away. Before they know it, the airlines are apt to be calling in all their hostesses for an hour of intensive training in how to push the right button.

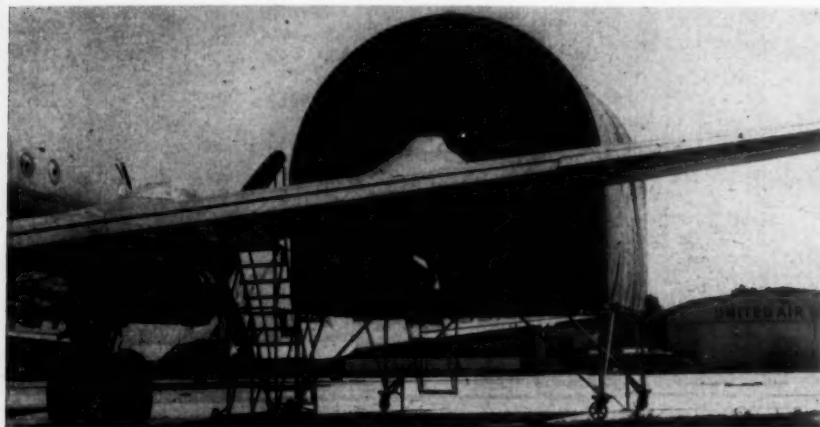
\*\*\*

This push-button rig sounds hard to beat, but hard-headed manufacturers are cooking up some other things in the hope that all the push buttons will organize and refuse to fly without pilots. One of these is a navigation table with a light which moves along under a map to pinpoint the plane's position at all times. All the pilot has to do is adjust his two ADF's or radio compasses to conform to his course and then keep the light moving along the right track on the map.

In the event that Bendix Radio Division in continuing development of this device, gets discouraged about the push-button era, we'd like to suggest modifying the lighted map idea to place it on the forward wall of the passenger cabin so the customers could follow the flight's position. Of course the hostess would have to change the maps from time to time, but it shouldn't take any more of her time than answering questions about "Where are we now?"

\*\*\*

And for such communication as may be necessary between push-button plane and ground, there is now the airborne radio teletype device which gives the same results as landline teletype, and also, for both crew and passengers to tell the folks when to meet them at the airport, planes now can carry the mobile radio telephone service which hooks you in with regular Bell System local or long distance lines. This, of course, will mean the added weight of a phone book for every city along the route.



**Canopy for Outside Work**—Outdoor work on United Air Lines Mainliners will be made more comfortable this winter with this canopy arrangement on a regular engine work stand. A draw string pulls the canopy snug around nacelle, and there is a portable heater and an auxiliary power supply for adequate lighting.

## Decca Shows Radio Systems In New York, Incorporates In U. S.

A description of the British Decca system of radio navigation and air traffic control was given last week in New York by Dudley H. Toller-Bond, chief engineer of Decca Navigator Company Ltd. of London. At the same time, announcement was made of the formation of a U. S. subsidiary, Decca Navigator System, Inc., to aid in promoting the system on U. S. and other international flag routes.

Heart of the Decca system as now in use in England is a 30-pound airborne "track control unit" in which a roll of specially marked film is inserted before a controlled flight. Marks on this film, used in conjunction with electrical output from a standard decca navigator set and with an instrument panel pointer indicator, permit a pilot to maintain any designated airway track, runway approach, or off-airport orbiting pattern, simply by keeping the pointer at the zero position and correcting for any left or right deviation shown by the pointer.

Free navigation or position fixing requires reference to two radio controlled cockpit meters and to special charts used with the system. Plane position is obtained by taking readings on red and green meters and locating correspondingly numbered red and green cross-lines on the chart. These readings, according to Toller-Bond, are accurate to within 30 feet at distances up to 50 miles, and 500 yards at 1,000 miles in daylight. Airborne radio receivers and ground transmitters used with the system operate automatically and continuously.

The multi-purpose Decca system is used in England for (1) maintaining any assigned track between two airports, (2) instrument or blind landing approaches to runways, and (3) keeping a plane on an assigned orbit off an approach area without stacking planes on a single beam. It is also adaptable to show miles covered or still to be covered at any point on a route, minutes behind or ahead of schedule at any moment, ground speed of the airplane, and altitude above terrain or position in relation to certain obstacles.

It was announced that secrecy surrounding the war-developed equipment has been removed, leaving the company "free to exploit the system commercially." Plans for such exploitation in the United States were not defined by the new Decca subsidiary and are expected to depend upon the outcome of forthcoming PICAQ discussions in Montreal following inspection of the navigation and traffic control developments of various nations.

## Braniff to Add 50 Co-Pilots, Promote 25 to Captain Soon

Pilot personnel on Braniff Airways are scheduled to be expanded by more than 25% by the end of this year, according to Braniff chief pilot R. V. Carleton. The expansion program includes not only the promotion of 25 first officers to captains and addition of 50 new co-pilots to the company roster, but extensive checks to transfer pilots from DC-3s to DC-4s, and training of all pilots in the C.A.A. instrument landing system which will be in operation at 13 Braniff stations this winter.

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# Tests of New Systems Augment FIDO Experiments at Arcata

**Wind Curtain, High Pressure, Sonic Devices Will be Evaluated**

By FRED HUNTER

A NUMBER of newly conceived fog dispelling methods are to be tested at the Landing Aids Experiment Station at Arcata, Calif. One is a new type high pressure system developed by the combustion division of the Todd shipbuilding concern. Another is a wind curtain installation.

The wind curtain is to be a curtain of air which is projected upward parallel to the runway and at right angles to the prevailing wind. This curtain forms a barrier to the wind, creating an eddy over the runway and maintaining the heat over the runway itself. It might cut FIDO costs to 10% of what they now are.

♦ **Quite similar** is a water screen experiment slated to be tried in the near future. The plan is to project a curtain of water approximately 100 feet into the air. This curtain of water will cause fog particles to coalesce with the water particles and all will fall to the ground. This curtain is to be installed on the side of the runway nearest the prevailing wind and in this way will remove the fog particles before they reach the runway, reducing the amount of heat necessary to clear the fog.

They also are bombarding fog with sound at Arcata. Deep in experiments, for example, is the Ultrasonic Corporation of Boston, which was formed about a year ago to develop supersonic industrial usages on a wide scale. This company plans to cover a considerable range, everything from homogenizing milk to aging whisky, and it has developed a mechanism that pitches the decibels so high the sound waves cause the fog particles to collide with each other and grow so big they can't remain in suspension. The Ultrasonic Corporation's experiments still are on a laboratory scale, but their charts are at least promising.

The station also has 12 Chrysler Victory Bell sirens at the windward end of the runway, which shriek into the night at 3,000 revolutions per minute, and negotiations now are in progress to test a new microwave process developed by the Sperry corporation.

♦ **The approach lights** used at Arcata ex-

tend for a distance of 3,000 feet from the airport boundary. They are lined up with the runway lights and from the air give the appearance of bounding a runway, but since they are red the pilot knows they simply are approach lights and not an actual landing area. They are, however, at runway level so that the pilot may have advance knowledge of the exact position of the runway in relation to his aircraft. At Arcata this entailed considerable tower work due to terrain approaching the airport.

The 5,000-watt lights are set in a pattern of 40 degrees horizontal and 28 degrees vertical and are controllable in volume to compensate for glare. The lights themselves are somewhat similar to the flood lights used at most airports to illuminate runways, but are red in color. They were developed by the American Gas Accumulator Company.

George Potter, acting chief of operations at Arcata, reports that he has seen the approach lights as far away as 45 miles.

The runway lights are the Bartow type developed during the war and are white at the start of the runway. Toward the end they turn yellow to warn the pilot he is running out of runway.

Under most conditions of fair visibility a combination of the instrument approach system and the high intensity lighting is sufficient for the test pilots at Arcata to land. When the fog gets thick, the FIDO is turned on.

♦ **At present**, the approach lights are in a double row, but the Air Transport Association and the Air Line Pilots Association have asked for tests on a single row set up to mark an approach to the center of the runway on the theory that one row of lights leading right into the middle of the runway would be a better pattern of marking.

Originally started by the Navy after it had made successful use of FIDO in the Aleutians, the Landing Aids Experiment Station now is a civilian project. It is operated by United Air Lines under contract with the Bureau of Aeronautics, but it is guided and controlled by a steering committee composed of representatives of the Army, the Navy, the Civil Aeronautics Administration, the Civil Aeronautics Board, the Air Transport Association and the Air Lines Pilots Association.

Like all research institutions, the sta-

## Questions Terminal Plan Secrecy

Lynn Bollinger, Harvard University, told the National Aviation Clinic in Okla. City that some doubts were arising in people's minds about the way airlines are handling the joint air terminal corporation idea.

Speaking informally at the conclusion of a speech by Joseph McGoldrick, who conducted the terminal air corporation study for the Air Transport Association, Bollinger asserted that the airlines are open to criticism for keeping the McGoldrick report confidential, that is should be definitely clarified whether or not the airlines intend to make a profit from the terminal corporation, and that there should be some public representation on the board of the corporation.

McGoldrick stated that he was not in a position to answer Bollinger's comments.

tion's principal handicap in moving forward on all the projects it would like is its lack of funds. But it has an eye on the future as well as the present and as Bob Champion, the station's director, puts it: "We're even making plans to try out atomic energy and solar energy to bring flying under any conditions."

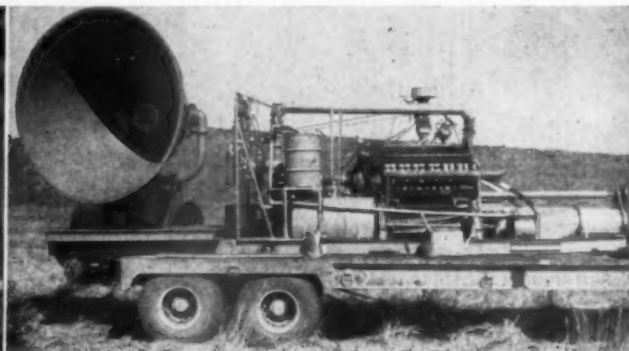
(Editor's Note: This is the last in a series of two articles.)

## Bennett Field To NYC To Cut Air Congestion

Following several months of negotiations between the city of New York and the Navy, final arrangements have been made for return of Floyd Bennett Field in Brooklyn to the city for commercial operations. Although it is estimated that New York will spend about \$1,500,000 for immediate improvements, the transfer is being made on a permit basis and the Navy will retain title to the field.

Limited use of Floyd Bennett to relieve New York's airport congestion problem is anticipated within 30 days. The city expects to occupy the administration building on Flatbush Ave., three double hangars to the north of the field, plus two seaplane hangars.

Time necessary for full transition to commercial operations will depend upon how rapidly the Navy can vacate buildings and hangars, and upon how long it takes to carry out immediate improvements which the city has outlined.



Aid of sonic unit (right) to disperse fog is tested in experiments being conducted at Arcata, Calif., Landing Aids Experimental Station (right).

# New Equipment

## Engine Oil Drain Valve

A new oil drain valve, shown here being installed on a light plane engine, permits rapid drainage of oil without removing safety wire and oil drain plug. Once installed and safety wired it requires no further attention, makes drainage cleaner and easier, and lessens danger of damaging oil pump threads. With a  $\frac{3}{8}$  inch—18 thread it will fit all Continental light engines. Manufactured by Koehler Aircraft Products Co., 814 Vermont Ave., Dayton 4, Ohio.



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## Starter Test Bench

The manufacturing division of Pacific Air-motive Corp., Glendale, Calif., has developed this model PA-751-A test bench for virtually all types of starters. New design for attaching adapter plates to single mounting pad allows motor and adapter plate to be swung on hinge without dismounting the motor to reach the clutch adjustment nut.

Two pressure gauges are provided and the



model is equipped with prony brake, controlled by adjustable air pressure regulator with air cylinder controlling hydraulic master cylinder and brakes. It allows adjustment of torque from zero to maximum required for making torque and electrical tests. Tachometer shows jaw speed.

## Roll Thread Comparator

Designed primarily for inspecting small, hard-to-handle screws such as those used in instruments, this device is adaptable to screws from .060 to .216 in diameter and threads of 80 to 28 per inch. It used the J-S gaging principle with a pressure control feature which



relieves the operator of deciding borderline cases.

Screws are placed in the work holder and operating lever is depressed to present the screw to the gaging rolls. Indicator light is always on except when excessive pressure is applied. Pratt & Whitney, Division Niles-Bement-Pond Co., West Hartford, Conn.

## AIRResearch Takes on New Product

Appointment of the AIRResearch Manufacturing Company, Los Angeles, a division of The Garrett Corporation, as exclusive distributor of the Vapor Cycle Modulation Controls for the aircraft industry, has been announced by L. H. Gillick, vice president of Vapor Car Heating Company, Inc., Chicago, Ill.

The Vapor Car-AIRResearch association was arranged to make possible simpler and more accurate temperature control in airplanes. Vapor Car Thermostats guarantee positive positioning and modulating control of the electrical power units controlling oil temperatures, cabin temperatures, de-icing, etc. A "neutral zone" in Vapor equipment insures a definite positioning of the shutters or dampers without hunting and without delay. Any change in temperature is followed by an exact repositioning. The equipment used to accomplish this temperature control consists of a special vapor mercury tube temperature sensing element which controls the operation of the power unit through a simple relay assembly.

## Douglas-Designed Loading Stair

A loading stair for use with DC-4s and DC-6s, wide enough for two people to walk abreast and with a loading platform more than five by eight feet, has been developed by Douglas Aircraft Co.

The aluminum panelled unit is 117 inches long, 132 inches high, and is mounted on 16 inch wheels which may be steered and braked by ground personnel. Stairway has rubber tread and a rubber handrail for passenger safety. Fire extinguishers, wheels chocks and other equipment may be stored in space beneath the ramp.

## Casseroles for Flight Meals

Air Associates, Inc., Teterboro, N. J., is marketing these compact casserole units for holding and serving hot meals. Made both in china and aluminum, the individual units are



racked one on top of the other in a stainless steel vacuum container. China unit with five casseroles weighs approximately 14 pounds, and the aluminum unit with six casseroles weighs eleven pounds.

## Contact Arc Welding

A new method of welding, resulting from development of an electrode which can be held continually in contact with the work piece, has been announced by Philips Laboratories, Inc., Irvington, N. Y. (a subsidiary of N. V. Philips' Gloeilampenfabrieken, Eindhoven). The new electrode uses, instead of an insulating coating around the metallic core, a coating that contains a large part of the core metal within itself in the form of a fine powder. The result is an electrode which is somewhat conductive, is held directly against the work, and eliminates the difficulty of maintaining a constant distance between electrode and work as in regular arc welding.

An article on the new electrode and the contact method of arc welding appears in the new issue of Philips Technical Review, a company publication.

## Tubeless Linear Actuator

An electric motor-operated linear actuator, connected simply by three wires without any tubing installation, has been developed by Electrical Engineering & Mfg. Corp. Although designed especially for wing flap operation it is reported to be adaptable to any application where a hydraulic jack is used ordinarily.

With the exception of the connecting wires, the entire actuator unit is self-contained and weighs only 11 pounds, ten ounces.

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# The Navy's NEW Seahawk

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Drawing on the wartime Seahawk's extensive service with the Pacific fleet, Navy and Curtiss-Wright engineers have developed the SC-2, a new scout plane of unprecedented range, speed, firepower, and general utility.

More room in the fuselage, with an extra seat aft of the pilot, provides for air-sea rescue work or for reconnaissance photography. Firepower has been increased beyond that of previous types by the installation of rockets under the wing. The new, hydraulically operated cabin enclosure is equipped for quick opening by compressed air in emergencies. A Wright Cyclone engine with two-speed supercharger gives the SC-2 a service ceiling of 28,000 feet, and provides increased range and speed. It is equipped with a Curtiss Electric hollow steel blade propeller.

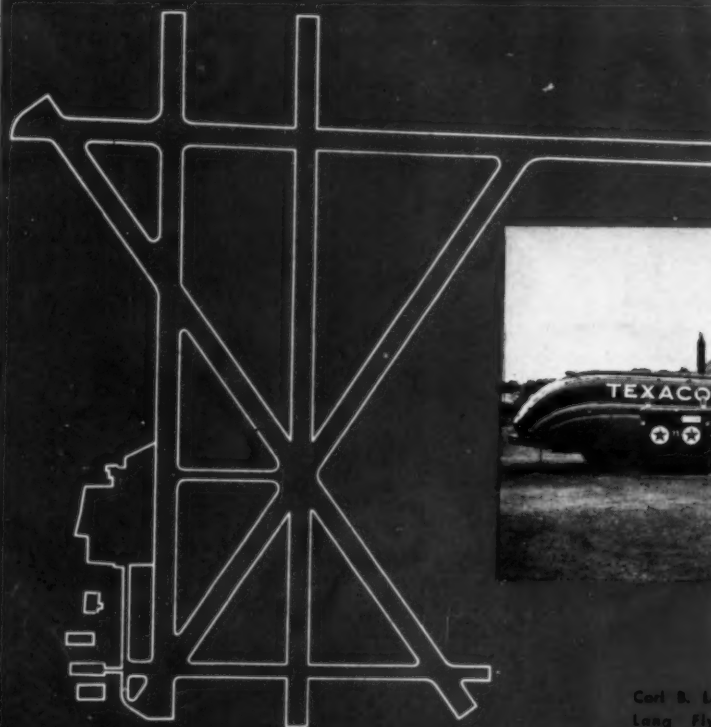
The Seahawk is now being delivered to the Navy from the Curtiss-Wright, Columbus, Ohio, plant.

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